

CAI
PET
- 83024

3 1761 116486127



offshore labrador
initial environmental
assessment
public review





Government
Publications

CAI
PET

- 83-20

83-07-28

LETTER OF TRANSMITTAL
PUBLIC REVIEW
PETRO-CANADA'S OFFSHORE LABRADOR
INITIAL ENVIRONMENTAL ASSESSMENT

This document is a report on the proceedings of the public review of Petro-Canada's Offshore Labrador Initial Environmental Assessment. The public review seminar was held at the Labrador Institute for Northern Studies, Memorial University of Newfoundland, in Goose Bay from November 17 to 18, 1982.

Delegates attending the seminar represented the various community organizations and interest groups on the coast and in the Happy Valley-Goose Bay area of Labrador. A group of resource persons from university, government and Petro-Canada were present to explain the contents of the I.E.A.

In addition to the I.E.A. review, time on November 19 was set aside for the delegates to discuss Petro-Canada's community liaison program. A summary report of this session as well as written review comments submitted by delegates are included in this report.

I trust the seminar and this report will assist both community and Petro-Canada understanding of the issues facing exploration on the Labrador Shelf.

Yours sincerely,

PETRO-CANADA

G.T. Glazier
General Manager
Environmental & Social Affairs
Petro-Canada Resources

ABR:msp

Enclosure





Digitized by the Internet Archive
in 2023 with funding from
University of Toronto

<https://archive.org/details/31761116486127>

TABLE OF CONTENTS

	PAGE
1.0 INTRODUCTION	1
2.0 OPENING PLENARY SESSION	4
3.0 WORKSHOP SESSIONS	38
3.1 Group A	38
3.2 Group B	60
3.3 Group C	75
4.0 CLOSING PLENARY SESSION	90
4.1 Workshop - Chairperson Reports	90
4.2 Discussion	95
4.3 Overview	98
4.4 Closing Remarks	99
5.0 COMMUNITY LIAISON	100
6.0 APPENDICES	
AGENDA	
LIST OF PARTICIPANTS	
LINS REVIEW COMMENTS	
LIA REVIEW COMMENTS	

1.0 INTRODUCTION

Oil and gas exploration has been ongoing since 1971 in the Labrador offshore. Since 1980 Petro-Canada has functioned as operator for the Labrador Group of Companies, which holds the largest block of leases in the area.

In recognition of the need for environmental information in its area of operations, Petro-Canada produced a document in January 1982 entitled - Offshore Labrador, Initial Environmental Assessment (IEA). As noted in the Letter of Transmittal for the document:

"This Initial Environmental Assessment will be circulated widely within the petroleum industry, within agencies of the Government of Canada and of Newfoundland and Labrador, and among members of the concerned public. It is hoped that this IEA will help clarify, and perhaps resolve, the environmental concerns raised by offshore hydrocarbon exploration in Labrador. Comments on the material contained in this Initial Environmental Assessment will be welcomed."

In an effort to facilitate the review and appraisal of this document, Petro-Canada retained LeDrew Environmental Management (LEM) Limited to organize a series of two review seminars. The stated purpose of the seminars was to review and evaluate the IEA document and to identify and prioritize necessary further studies.

The first (Scientific Review) seminar was held at the Lester Hotel, St. John's, Newfoundland, May 18-19, 1982. A group of approximately thirty scientists and managers were invited from government and university. This was augmented by eleven resource persons from Petro-Canada and its consultants.

The result of that seminar was produced as a draft report and Petro-Canada provided a response to the comments received. Following this exercise and in keeping with one of its recommendations, a Summary of the IEA document was produced. This 61 page condensation of the 550 page main document was intended to assist in the public understanding and review of Petro-Canada's effort.

The various community organizations, development and interest groups in coastal Labrador were contacted to conduct a review of the IEA and name delegates to participate in a review seminar. The Community Councils, Band Councils, Development Associations, Fish Co-operatives, the Labrador Inuit Association (LIA), the Labrador North Chamber of Commerce, and the Labrador Institute of Northern Studies (LINS) were all contacted to participate in the review exercise.

In addition to these delegates, a group of resource persons was recruited from university and government to assist in explaining the contents of the IEA.

To describe the content of the IEA and explain the company's Labrador operations, Petro-Canada assigned to the seminar nine of its professional staff who were involved in production of the IEA, in drilling operations, or in community liaison.

In preparation for the seminar, a series of visits were made to Labrador to meet with seminar delegates and interested people. Bevin LeDrew and Wayne Piercy held meetings in L'Anse Au Clair, Port Hope Simpson, Cartwright, Rigolet and Happy Valley-Goose Bay. Two slide presentations were made at each meeting. One described the process of exploratory drilling, and the other outlined the biological studies that contributed to the IEA. In addition, the delegates were guided through the IEA document to assist in their understanding of its contents. In total, 31 persons participated in this preparation process.

The Public Review Seminar itself was held at the Labrador Institute for Northern Studies, Memorial University of Newfoundland, in Goose Bay from November 17 to 18, 1982. This document is a report on the proceedings of that seminar.

Attached as appendices to this report are:

- The seminar agenda.
- The seminar invitation list (actual attendees are listed for each workshop in the text).
- Written review comments submitted by the Labrador Inuit Association, by B. Boles of the Labrador Institute for Northern Studies, and by Bill Flowers, Torngat Co-operative.

As an adjunct to the Public Review Seminar, the morning of November 19, 1982, was spent discussing the Petro-Canada Community Liaison Program. It also included discussion of the role of government and the communities themselves in community liaison. A summary report of that session is included in this document.

2.0 OPENING PLENARY SESSION

Opening Remarks

Wayne Piercley welcomed the community, government and Petro-Canada representatives, saying that the seminar would be an opportunity to make comments and ask questions about the IEA.

Bevin LeDrew outlined the procedure for the seminar. The two days would focus on the IEA, beginning with an explanation and update of the document by Petro-Canada personnel. The participants would then break into workshop groups to work through the document and question the available Petro-Canada and resource people. A Closing Plenary Session would enable participants to report on their workshop effort, compare the discussions held, and discuss any conclusions or recommendations.

OLABS and its Role

To provide some history on how the Initial Environmental Assessment came into being, Duncan Hardie described the organization and functions of COGLA (Canada Oil and Gas Lands Administration). COGLA was formed in March, 1982, and is responsible for the management of oil and gas exploration and development on federal lands in Canada. COGLA is jointly directed by the Department of Energy, Mines and Resources (EMR) and the Department of Indian and Northern Affairs (DINA). The Deputy Minister for Policy Analysis is responsible for the Environmental Protection, Canada Benefits, and Policy Analysis and Coordination branches of COGLA.

Mr. Hardie explained that the IEA developed from the results of the Offshore Labrador Studies (OLABS). This program was designed to collect baseline biological data on shoreline sensitivities, fish and the fisheries, zooplankton, phytoplankton, marine mammals and seabirds, as well as on the meteorology, physical and chemical oceanography, and socio-economic conditions in coastal Labrador. Since the three-year OLABS program began in 1979, approximately \$3.2 million has been spent. A number of studies are still underway, and the final reports should be ready in 1983. A brief on the OLABS program was made available for the delegates.

Tony Williamson asked what was the purpose and origin of COGLA. D. Hardie answered that COGLA had been set up in response to the requirements of the National Energy Program, and served to coordinate the oil and gas components of EMR and DINA, which had previously been divided on a geographical basis.

Judy Rowell said that the LIA had been dealing with COGLA, and understood that COGLA and Petro-Canada were currently renegotiating the terms of the leases for offshore Labrador. The LIA had hoped to meet with a representative of the Canada Benefits section of COGLA during the seminar. D. Hardie said that Erik Val, of the Canada Benefits section, had planned to attend, but had been called to Nova Scotia at the last minute.

Doug Saunders asked how the Environmental Studies Revolving Fund (ESRF) is being administered by COGLA.

D. Hardie explained that the Fund was established under the Oil and Gas Act, to cover environmental and socio-economic studies related to oil and gas exploration and development. The fund is administered separately for the areas North and South of 60°N, and amounts to \$15 million for each of these areas. COGLA is presently developing the infrastructure for administering the fund south of 60°N. Information on the guidelines for accessing these Funds is also presently under development and is available from Dr. Jim McTaggart-Cowan, at COGLA.

Introduction to the IEA

Bevin LeDrew introduced Wayne Speller. As manager of Offshore Environmental Impact Assessment for Petro-Canada, Dr. Speller was involved in the preparation of the IEA. B. LeDrew noted that Dr. Speller would explain the purpose and function of the IEA.

W. Speller pointed out that in 1980 Petro-Canada took over from Total Eastcan as the operator for the Labrador Group of Companies. COGLA requested that Petro-Canada undertake an environmental assessment for the purposes of contingency planning and for identification of future studies needed in the exploration phase, in support of contingency planning. Both COGLA and Petro-Canada recognized the importance of having this information available.

The IEA is organized along the lines of other impact statements, such as for the Davis Strait and Beaufort

Sea. A statement of purpose, description of the exploratory activities and the environment, and an assessment of the impacts resulting from these activities are included. The IEA was written primarily by Petro-Canada staff with the assistance of consultants.

W. Speller said that the review of the IEA was a new experience for Petro-Canada. An earlier scientific review resulted in a number of recommendations for studies required to support exploratory drilling. Petro-Canada's responses and comments are to be included in a report on that seminar. A similar report will be produced after this review seminar.

Bruce Boles asked why the IEA was produced before all the information from OLABS and other studies had been received.

Wayne Speller replied that Petro-Canada was requested to complete the IEA. In the event of a major discovery, the company would be required to produce an environmental impact statement as part of the formal review process. Industry recognized that new information was continuously becoming available. It was felt that a basic document could be expanded with future studies.

Duncan Hardie said that much of the OLABS data was used in preparing an oil spill contingency plan. Such a plan is a requirement for permission to conduct exploratory drilling. The contingency plans are necessary to show that a company has an understanding of the environment and can respond to emergencies.

Bruce Boles questioned whether it would not be preferable to wait until there was complete information, especially of the physical environment, prior to the development of oil slick trajectory models. He felt that the information in the IEA was inadequate for slick trajectory modeling, which was an important tool for impact assessment. Further, he requested that there be a public review of the contingency plans.

Bevin LeDrew said that the purpose of the presentations by Petro-Canada was to help delegates in understanding the IEA and to encourage feedback from the community representatives. He reminded resource people (LINS, Petroleum Directorate, Department of Fisheries and Oceans, Canadian Wildlife Service, COGLA) that their role was to help explain information and generate discussion among the delegates.

Clara Michelin expressed disappointment that the contingency plans were not part of the IEA, and that there were no plans for discussing them. Don Karasiuk said that a discussion of contingency plans would be included in the afternoon session on impacts.

Judy Rowell said that the LIA had prepared a position paper on the IEA and offshore oil in general which comments on the need to include contingency plans. (This document was tabled at the end of the seminar and is appended to this report.) She noted that from the proceedings of the scientific review, the purpose of the IEA was as a supporting document for contingency plans. She felt that the role of the IEA was, therefore, different from what she had assumed prior to the scientific review.

Project Description

Bruce Berry (drilling engineer - Petro Canada, St. John's) described the drilling aspects of offshore exploration.

Of the 24 wells drilled since 1971, the North Bjarni area has indicated natural gas fields. There has been one oil find, but this was not commercially significant.

The operation of dynamically-positioned drill ships was explained. This type of drillship is needed in offshore Labrador because it is able to move off-position quickly in the event of an approaching iceberg.

Seismic surveys, and their function in locating probable areas of hydro-carbons were described. An outline was provided of the drilling process including the use of drilling muds (which serve to lubricate the drill bit and return cuttings to the drillship), casing installation, blowout preventor functions, electric logging (to test for hydrocarbons) and the procedures for abandonment of a well after completion of drilling.

Larry Jackson asked how pressures in the well were detected, and how fast the response time would be if abnormal pressures were found. Bruce Berry replied that typical formation pressures are equivalent to the hydrostatic pressure (the pressure of water at a given depth), and the drilling muds are weighted to balance this. When drilling into a potential hydrocarbon zone, extra weight is added to the mud. If the mud is not heavy enough, formation fluids enter the well-bore and may come

to the surface. As soon as the problem is detected, the blowout preventor is set, and the flow is stopped. Heavier mud is then prepared according to pressure gauge readings, and circulated into the well-bore. Ideally, by the time the new drilling mud has recycled to the surface, the formation fluids will have been removed and the well will again be static.

Drilling mud is water-based, with additions of various compounds that help in the drilling process (clay to increase viscosity; barite to increase hydrostatic pressure). Mud is circulated back up to the drillship where a shaker separator system removes the coarse cuttings, sands and silt, and the mud can then be reused.

Clara Michelin asked how the amount of oil and gas in a well is measured. Bruce Berry explained that the flow rate of the hydrocarbons, together with factors such as height and extent of the reservoir (derived from seismic surveys and other wells drilled in the area) are used to determine the quantities of oil and gas in a reservoir.

Randy Sweetnam asked several questions about casing. Bruce Berry said that the casing is made from high grade steel, and all pipe is pressure rated. The thickness of the casing varies: surface casing is one inch thick, most others are half an inch. The pipe is pressure-tested after being cemented in place.

A number of questions were asked by G. Flowers and C. Michelin about abandoned (capped) wells. Bruce Berry explained that concrete plugs are set at various locations in the well to close off the formations. The top plug is 150 feet below the seafloor. If an abandoned well was going to leak, it would do so immediately after capping. Gas bubbles rising to the surface indicate such leakage.

The logistics involved in offshore operations were then outlined:

- The main supply base is at St. John's.
- Three supply boats are assigned per rig, and are responsible for transport of supplies, and iceberg towing.
- Two helicopters are based in Goose Bay; two in Saglek; Several aircraft are chartered to transport crews.

- The communications network utilizes single side band, VHF and satellite systems.

Garfield Flowers asked if a supply base along the coast had been considered since the distance between the drillsites and St. John's is so great. Bruce Berry replied that Goose Bay had been considered, but it has no regular year-round surface transportation system. Since supplies are brought in by freighter to St. John's, little would be saved by reloading these for Goose Bay, where they would have to be transferred to the supply boats. Emergency stocks are kept in Hopedale.

The towing (more properly termed deflection) of icebergs was outlined by B. Berry. The ice observers aboard each rig plot icebergs within radar range. If the iceberg is a threat to the rig, the tow boat will attempt to change the iceberg's course. This procedure is initiated if an iceberg is within 6-10 miles of the rig, and it is fairly effective. Only 1 percent of downtime was attributed to icebergs on the two rigs that were operating in 1982.

J. Rowell asked whether there were problems of equilibrium of small icebergs when towing. B. Berry responded that while there are few difficulties with towing large icebergs, smaller ones tend to roll when towed. A technique of 'prop washing' with supply boat propellers is used to divert such small icebergs.

L. Jackson asked if storm conditions had ever been experienced at the same time as an iceberg threat. B. Berry said that there have been situations in which it was impossible to tow icebergs. In these cases, the rigs have disconnected and moved about half a mile off position. This happened three or four times in 1982. Towing in seas over 15 feet is not feasible.

J. Rowell asked if the use of microwaves or lasers for breaking up icebergs was being studied seriously. B. Berry said that while he couldn't answer that question specifically, it was preferable to leave the iceberg intact. Small fragments of a larger iceberg are difficult to handle and still present a threat to the rig.

With reference to earlier questions, Wayne Speller asked if drilling fluids were left in the abandoned wells. Bruce Berry said that some fluids are left in the wells. He noted that the procedure for dumping the mud

varies. If another well is to be drilled in the same area, the mud will be retained. If the rig is going elsewhere or if it is the end of the season, the mud will be dumped overboard.

Physical Environment

Dr. Joe Buckley, an Oceanographer with Petro-Canada, described the physical environment of coastal and offshore Labrador (including geology, coastlines, and physical oceanography) as they pertain to exploratory drilling. He noted that, as J. Rowell had commented, the IEA was written primarily to support contingency planning. The physical environment section addresses those aspects of the environment that could affect drilling operations. While the drilling record over the last 10 years has been good, much more information on the physical environment is needed before production could take place.

The bathymetry (variations in depth) of the Labrador Sea include the following regions, from the shore seaward:

- coastal zone
- continental shelf: inner shelf, marginal trough, Labrador Banks or outer shelf; and the transverse saddles which separate the banks
- continental slope
- continental rise

The area of interest for exploratory drilling is almost entirely confined to the banks and saddles of the Continental Shelf.

There are several rock types that predominate the coast and offshore Labrador. Extremely old granites and similar rocks were created by volcanic action and do not contain hydrocarbons. Because this is the rock formation found on land and on the seabed out to the marginal trough, there would not be any drilling in nearshore areas or on land.

Somewhat younger sedimentary rocks were formed by the compression of eroded materials (sands, silts, clays) over time. On the banks and other offshore areas where such rock occurs, oil and gas may be found in the more porous sandstones which have been capped over by impervious layers of sedimentary rock, thus trapping the hydrocarbons.

Boulders, rocks and sand scraped from the land by the glaciers in more recent times (10 million years ago) were deposited as the glaciers broke off and melted in the sea. These glacial sediments are present on the banks and each type presents problems in drilling.

The coast of Labrador is extremely complex: for 1200 km in a direct line, there is an estimated 20,000 km of coastline including those of the offshore islands. The very hard rocks of the Canadian Shield dominate the coast so that, in general, the coast is very similar throughout its length.

The processes that modify the shore include waves, ice and tides. Wave action creates and reshapes beaches. Erosion of rocks is a very lengthy process. Seasonal ice both protects the shore from large winter waves, and also entraps and moves sand and gravel. Locally strong tidal currents keep the shore free from deposits. The more important action of the tide is through the breaking up the nearshore rather than offshore ice, resulting in the formation of boulder barricades. These rows of boulders, which normally form at the low tide line, are unique to Labrador.

These processes have annual cycles, and vary considerably from north to south. Spring and summer river runoff adds sediments to the nearshore area; storms and wave action are more severe in winter, and ice is formed and melts each year. The balance of these factors controls coastline changes.

Judy Rowell asked if there were boulder beds offshore, and if these would present difficulties to drilling operations. Joe Buckley said that boulders on the surface of the seabed can be detected in seismic surveys, but there is no method for detecting boulders buried in the glacial sediments. Boulders are not a significant problem in relief well drilling. A delay in drilling of one half to two days is required for the rig to redrill at a slightly different location. From the first well, it would be known if boulders were likely to be encountered.

Dr. Buckley elaborated on the physical oceanography section of the summary with illustrations from the IEA. He described water masses, ocean currents (speeds and regional variations that are related to bathymetry; the non-directional flows on the banks; sources of variability) and waves (data sources, wave heights and periods, extreme waves).

Clara Michelin asked what data existed from the instrument measurement of waves. Joe Buckley said that records exist in public government files for the time that drill ships have been in operation (since 1973). A constraint in compiling the IEA was that existing analyzed data only was used. Access to data banks that would enable a reanalysis of data was not attempted.

Garfield Flowers asked why, as shown in the IEA, waves were higher in winter. Joe Buckley answered that the storms that generate waves are worse in winter. Garfield Flowers said that waves frequently seemed worse in the spring. Joe Buckley said that this was probably a result of a difference in wind direction. Winds off land have a shorter distance in which to create waves.

Garfield Flowers asked if the salt content of the water varied between the spring and fall. Joe Buckley acknowledged that a difference of a few percent existed. The surface layer nearshore tends to be strongly influenced by runoff, but 50 to 150 miles offshore, this influence is not present. The salt content affects the density of water, but at the scale of these differences, the effect on wave generation would be negligible. He said that there were, at present, no theories that related water density to wave height.

Larry Jackson asked how much bias was present in ship observation of waves. Joe Buckley said that a fair-weather bias is generally accepted, because ships will avoid the worst storms. This is the main reason why ship observations do not reflect the worst sea states. At present a good computer model for predicting extreme waves has not been developed and applied to Labrador. In formulating predictions of extreme waves, an average of a number of predictive methods and data bases is used.

Studies done since the IEA include:

- Coastal zone mapping: establishment of a data bank, including locations and types of biological resources, coastline types, and human activities (i.e. fishing).
- A major oceanographic study was conducted by Petro-Canada on behalf of the Labrador Group in 1980. The analysis, which was not available for the IEA, has since been completed and a report should be available by the end of 1982.

- A joint program with the Bedford Institute of Oceanography was conducted in the summer of 1981. The oceanographic processes that might cause fish eggs and larvae to move onto Belle Isle Bank were studied. The analysis of the data is now being done by the Bedford Institute.
- A current measurement program was undertaken in the summer of 1982. This study examined the variability of the inner edge of the Labrador Current. The data from this program are now being processed.
- The physical environment aspects of contingency planning and the oil slick trajectory models will be reassessed in the light of new water current information.

Meteorology/Sea Ice/Icebergs

John Miller, of the Offshore Research Group of Petro-Canada, discussed meteorology and ice.

The description of the meteorological environment contained in the IEA was compiled from a number of data sources, each of which has particular shortcomings. Present weather records are collected from the drill ships during the operational season, and from Atmospheric Environment Service (AES) weather stations in coastal communities.

Seasonal variations in pressure patterns show that statistically there are more storms during the summer season, however, winter storms are more severe. Because of topography, coastal weather stations are not necessarily representative of conditions offshore. John Miller pointed out that the magnitudes of extreme winds are not well-known. OSV Bravo data is thought to overestimate wind conditions on the Shelf; however, the long-term records needed to predict extreme winds are not available for the Shelf.

Visibility (fog and blowing snow) and air temperature data from coastal stations and OSV Bravo are also not necessarily representative of the Labrador Shelf, however, a broad 'envelope' of conditions on the Shelf region can be drawn from these two sources.

Icing on vessel superstructures increases with greater wind speeds and colder temperatures. This phenomenon has not interfered with drilling operations to date.

Ongoing meteorological programs include:

- Labrador Automatic Weather Stations (LAWS) at Quaker Hat, Stirrup and Galvano Islands. Temperature, pressure, wind speed and direction and relative humidity are recorded.
- Shipborne Automatic Weather Stations (SAWS) are completely automatic recording units located on the rigs. The data includes that of LAWS plus measurement of ceiling.
- Surface drifters, which drift with the current and transmit to a satellite receiver data on sea surface temperature, atmospheric pressure and location.

Duncan Hardie asked how long the drifters are left before being recovered. John Miller said that the drifters are left out for as long as possible. Although their minimum life is six months, they can last 2 1/2 years.

Of the two released in 1981, one travelled along the coast of Labrador and, after passing through the Straits of Belle Isle, was recovered at the southwest tip of Newfoundland. This drifter is being refurbished prior to another release. The second one travelled around the east coast of Newfoundland and the Avalon Peninsula across the Flemish Cap. The last report, which was a year after its release, showed that it was moving south off the eastern edge of the Grand Banks. From other drifter programs, some released in Baffin Bay have travelled to the Grand Banks, another migrated across the Atlantic to the Irish Sea.

Joe Buckley said that any assistance in recovering the drifters from onshore or nearshore areas would be appreciated. Persons finding drifters should call the phone number marked on the drifter and arrangements would be made to pick it up. At present (November 1982) there are two drifters just south of Saglek.

In response to a question from Larry Jackson, John Miller said two drifters had been put out in 1981; eight in 1982. Joe Buckley said that the drifters passing through the Strait of Belle Isle were not unusual occurrences (one of two in 1981, one of four in 1982). Water from the inshore branch of the Labrador Current

typically passes through the Straits to the Gulf of St. Lawrence. Often these drifters will come out of the Gulf to the south side of Newfoundland rather than moving back through the Straits.

A drift card program was carried out from the drill ships over the past few years. The surface drifters are replacing the drift cards because more information can be obtained from them. Although the majority of these cards were recovered from Ireland, a significant proportion (one-quarter) came ashore on the west coast of Newfoundland. Wendell Hamel cited one case of a drift card going north into Baffin Bay; Joe Buckley said that this had probably got caught in the West Greenland current after initially going towards Ireland. This was an unusual sequence of events.

John Miller then reviewed the information on ice. Sea ice can be fixed (landfast) or mobile (pack ice). Ice can be classified according to stage of development and age. Labrador pack ice is predominantly local ice (new, grey, grey-white, first-year) with small variable amounts of multi-year ice that originates outside the area (Baffin Bay, Hudson Strait, Arctic Archipelago). Work is being done by the Centre for Cold Ocean Resources Engineering (C-CORE) to quantify the amounts of multi-year ice using aerial photography provided by the Labrador Group.

Graphic illustrations were shown of: the annual changes in the concentrations of ice types; the variation in ice concentration and roughness from shore seaward, and the relationship between floe size distribution in pack ice, and wave energy.

Duncan Hardie asked where the wells drilled would be in relation to the ice. John Miller replied that most of the wellsites would be in the interior zone of the pack ice during winter.

Values were provided for ice motion (local and regional scales), thickness of deformed and undeformed ice, frequency of and space between ridges, salinities of ice of different ages, density, floe size, and ice strength. These were used to provide an indication of the range of variation and changes in sea ice.

Iceberg information was presented, including a description of sources, travel and residence times through and in Labrador waters, destructive forces that cause iceberg deterioration and breakdown, iceberg densities, and dimensions (length, draft).

Most icebergs occur during the period April to May; the least in November-December. In an average year, 1200 icebergs pass Cape Chidley, of which 20 percent reach 50°N latitude. These figures are ten years old and remain the best 'guesstimates' even with the regional ice mapping program.

The 1982 ice program included the documentation of pack ice environment using satellite imagery. Passive microwave and visible band-LANDSAT-imagery were used, together with radar imagery from AES to determine variations in location and time of year.

Engineering support work is the focus of 1983 studies. This includes estimating iceberg flux (the number of bergs passing through an area); determining the risk of bergs to offshore structures; measurements of physical dimensions and velocity of icebergs that will then be used in energy calculations; and compilation of information on pack ice to test the accuracy of the models.

Support programs for physical environmental data that are conducted on board the drill ships include:

- regular weather observations;
- weather forecasting service operated out of St. John's by a consultant;
- iceberg management program (detection and observation; tracking and trajectory calculations; documentation of sizes; towing and deflection activities);
- ocean current measurements program;
- wave measurement program using wave rider buoys.

Larry Jackson asked how much emphasis was placed on iceberg scour. John Miller replied that Petro-Canada was very interested in iceberg scour, and is supporting some of the research efforts of C-CORE and the Bedford Institute of Oceanography. John noted, however, that for exploration activities, iceberg scour is not considered to be a large problem when dynamically-positioned vessels are used. Scour phenomena are a major concern in relation to potential production.

Errol White said that he had worked on the Pellerin during the previous summer, and said that the small ice couldn't be detected in radar. John Miller said that this problem is being worked on. Detection of icebergs is part of the 1983 program. Radar and visual observations are the methods now used for iceberg detection. Radar can lose its target in high seas. Field trials were carried out in Baffin Bay using two radar systems with three antennae and several frequencies to determine what would be the best set of parameters to maximize detection. A new radar system is being developed which operates in a different frequency band that follows the curvature of the earth. This multi-static system has a detection range of 80 to 150 km, and separates the receiver and transmitter. Hardware specifications should be ready by early 1983 and field-testing of the prototype should begin 8-10 months later.

In response to another question from Errol White, John Miller said that both active and passive sonar systems are being studied as methods for iceberg detection, in a joint project of Petro-Canada and Mobil Oil. Currently, there is no sonar detection system in place. He agreed with E. White that, while most people think that a bigger iceberg is a greater problem, the small ones present more difficulties both for detection and towing.

In response to Wish Robson, John Miller said that small bergs could be the size of a house or of a table. Small icebergs with a mass of hundreds to thousands of tonnes are the ones which present the greatest problem. He continued to say that the underwater shape of the ice and the location of the berg in the waves will determine what portion of a berg would hit a structure. Such questions are of very great concern.

Larry Jackson asked what size of iceberg becomes a problem for detection by radar. John Miller said that this depends significantly on items such as sea state, the amount of clutter on the radar screen, the frequency of the radar, whether circular or horizontal polarization is being used, iceberg geometry, iceberg detection properties, and other factors. An approximate figure is probably below 50,000 tonnes.

Biological Environment

Don Karasiuk, editor of the IEA, spoke about the biological sections of the document and the impacts on the

environment that might arise from daily activities or a potential disaster. An understanding of the biological components of the environment will facilitate decisions of how to respond to changes that might be made in the environment and the development of procedures that would minimize impacts.

The basis of the food chain are microscopic plants (phytoplankton). The surface water of the Labrador Shelf is the main area where phytoplankton are active in transferring the sun's energy into matter that becomes food for other organisms, i.e. fish, and, ultimately, people. Surveys done as part of the OLABS program showed that there are higher concentrations of phytoplankton close to the shoreline and at the outer edge of the Shelf. In the spring deep, nutrient-rich waters rise to surface into a zone where the phytoplankton can use them, resulting in a 'bloom'. This bloom initiates events that take place higher up the food chain.

A one-year OLABS study at Makkovik and Cartwright indicated that the abundance of seaweeds (macrophytic algae) depends on the type of shoreline (exposed/sheltered) and the texture of the seabed (sandy, cobbles, boulders, etc.). Seaweeds are important because, together with the smaller plants, they provide up to 80 percent of the food available for the remainder of the food chain. The other 20 percent comes from the microscopic plants that grow on the underside of the ice. These epontic algae provide food for small animals such as arthropods, and cod may congregate under the ice to feed on these and other organisms.

An OLABS survey, similar to that for phytoplankton, studied zooplankton, minute free-floating animals that feed off microscopic plants. The dominant species of zooplankton have a growth and distribution pattern that parallels that of phytoplankton. Compared with onshore areas, there tended to be slightly higher concentrations and different species offshore.

In combination with the phytoplankton and zooplankton surveys, fish eggs and larvae were studied as part of the OLABS program. There are primarily two categories of eggs and larvae which are of concern. These are of 1) those fish such as capelin that spawn on or near the shore zone; and 2) those fish whose eggs rise to the surface from deeper spawning grounds, and are carried by the currents. An oil slick could affect both of these types of eggs and larvae, although in different ways. The introduction of

an undue amount of heavy metals into the waters might result in their incorporation at the lower levels of the food chain (phytoplankton, zooplankton) and their consequent accumulation throughout the food chain. Capelin are of special concern because so many other species (cod, harp seal, seabirds) rely on them as a food source.

Other fish species that are less sensitive to the effects of an oil spill are those that breed and bear live young and live at great depths (e.g. redfish) or those that spawn and whose eggs stay near the sea bottom, and whose larvae don't migrate up through the water column.

Through the OLABS program, a preliminary investigation was carried out to assess damage to capelin fish eggs from either a small oil spill or long-term changes made to the environment. It was found that the activity of a specific enzyme (benzene-a-pyrene hydroxylase) responded in a measurable way to these phenomena.

The point was made in the IEA that the fishery in Labrador has been changing over the past 10 years, with diversification to other species such as shrimp and turbot. This development may increase the economic significance of the fishery making it all the more important that there be no ecological calamities affecting this resource.

Through the OLABS program, two extensive aerial surveys for seabirds were flown in 1980 along the entire Labrador coast. The largest concentrations of waterfowl (eiders and scoters) were found off Nain, and in Groswater and Sandwich Bays. Most of the nesting seabirds in Labrador are found on the Gannet and Outer Gannet Islands (Gannet clusters) off Groswater Bay and in the Islands off Nain. Seabirds are very vulnerable to oil spills, especially when resident in the colonies, and special countermeasures must be taken to protect such areas. The Gannet clusters have very high numbers of nesting murres, razorbills, puffins, and some gulls. An ongoing OLABS study being carried out primarily by the Canadian Wildlife Service should, within two years, provide a good indication of population dynamics (colony sizes, time of fledging, the extent of foraging by adults).

People generally think that the worst damage from an oil spill would be caused by its coming onshore, however,

damage could also occur if a spill stayed in a sensitive offshore area. For example, Shearwaters have been found to gather around the Shelf break because food is plentiful there.

Clara Michelin asked if scientific tests on toxic chemicals had been done on components of the Labrador food chain. Don Karasiuk acknowledged that studies of the migration of toxins through the food chain need to be done, but such work must be carried out over a number of years to be of value. Smaller component studies have been done, and these can be pieced together like a jigsaw.

Mr. Karasiuk added that the single most effective countermeasure against pollution is its prevention, through improvements to the safety of the offshore rigs. This may be the reason for the reorientation of the OLABS program to emphasize studies of the physical environment (waves, climate). Work on toxic chemicals has been done in Alaska, the Beaufort Sea, the United States and the North Sea. The present consensus is that the acute toxicities are not a direct concern because the chemicals are highly diluted (1000 times) even metres from the point of release in the sea. Heavy metals, including those which are insoluble, are of concern.

Dr. Kevin Columbus agreed that, in general, the dilution of toxic substances in sea water is the main factor in reducing their toxicities. This would probably not be true for estuaries and fjords. He pointed out that marine life can absorb and retain toxic substances from the water, in which case there may be not only a problem of bioaccumulation but also of biomagnification.

Don Karasiuk acknowledged that estuaries and fjords are biologically sensitive and that ways are being developed to mitigate problems in these areas. He pointed out that the IEA does not dismiss or put off these concerns but endeavoured to portray the risks as accurately as possible.

Judy Rowell asked how a study of heavy metals in the food chain could be given a priority, given that it is not a part of contingency planning or engineering design. Unless the baseline levels are known, it cannot be determined if a problem exists, and what might result through additional activities. Don Karasiuk replied that the background levels of heavy metals and hydrocarbons in the environment have been examined. Priorities could be developed by government and industry in consultation with public interest groups. He pointed out that Petro-Canada is not responsible for budgeting funds for such work.

Duncan Hardie said that, as an adjunct to a seminar on drilling fluids held two years ago, the Department of the Environment is conducting a review of all types of drilling mud chemicals used in the offshore, and their potential impacts on the environment. The report from this study should be available in 1984.

Don Karasiuk pointed out that every year government has to approve the additives contained in each company's drilling muds. The use of a prohibited substance constitutes a violation of government regulations, and a company will be fined for such an offence.

Frank Flynn expressed concern that there was a long time lapse between when studies were undertaken and completed in other areas, and when they were done in Labrador. Don Karasiuk said that some information from studies in other areas could be applicable to Labrador or that extrapolations of the data to the Labrador context would be feasible. Frank Flynn pointed out that this transfer of information did not always work.

Wayne Speller pointed out that the focus of the IEA was only on exploratory drilling. COGLA would require that Petro-Canada prepare an Environmental Impact Statement (EIS) if production were planned. The EIS would be part of a government approval process, and would be similar to that which Mobil Oil is in the initial stages of preparing for the production of oil and gas off Sable Island.

The IEA states that, if there was a major discovery today, a minimum of 11 years would be required for the development and design of a production system for offshore Labrador. Predevelopment studies are part of the program now underway in offshore Labrador, and are viewed by the company as a necessary investment and as good economics.

Duncan Hardie noted that government regulations are constantly revised to incorporate new information on the environmental impacts of various activities, such as the use of toxic substances.

Randy Sweetnam asked if there were toxic compounds in drilling fluids. Don Karasiuk answered that potassium chloride (a natural component of seawater that is also used in drilling fluids) can be acutely toxic to fish if present in concentrated amounts. He again stressed that the problems of acute toxicity of compounds in the drilling fluids are overcome by a very great dilution with

seawater. Mr. Karasiuk felt that there should be a greater emphasis on heavy metals and possible substitutes (calcium lignosulphonate replacing ferrochrome lignosulphonate). Heavy metals can also come from the formation fluids themselves, but the only way to mitigate this is by not drilling.

Randy Sweetnam noted that cuttings and other wastes are released by the drill ships on the return trip to St. John's after completion of drilling. He asked for assurances that such dumping would not occur near inshore areas such as estuaries or fjords. It was pointed out that the fjords and estuaries are not part of the normal drill ship route. Bruce Berry said that drill ships have gone into Saglek fjord for other reasons (supplies), and it would be common courtesy not to dump there. Duncan Hardie added that, if this was done, the company would not be permitted to do further drilling.

Randy Sweetnam asked what the components of drilling fluids were, and what was their fate after being dumped overboard. Don Karasiuk said that the components of the drilling fluids could migrate in the currents, after being released into the surface water. This process further dilutes them. Cuttings would sink, clays would disperse, and barites and other chemicals would dissolve. About 70,000 gallons of cuttings are produced per well.

Errol White said that there should be some stipulation that there be no disposal of drilling fluids permitted under a certain minimum depth of water. He expressed concern that in shallow waters, currents would bring the chemicals onshore.

Don Karasiuk said that this is the type of issue that would be addressed by the environmental operating conditions, which are set by government each year on a site-by-site basis. Duncan Hardie pointed out that Canadian laws can require that drill ships' wastes be discharged at a land-based disposal site. Furthermore, because such an offence can be prosecuted under the Ocean Dumping Act, it is to the advantage of the operator to abide by these operating conditions.

Larry Jackson said that he had found the fisheries section of the IEA contained several misleading and/or simplistic statements to which he objected. He was disappointed that these points had not been raised during the scientific review. He disagreed with the assertion in the IEA that, while the inshore fishery was of greater

economic importance, it was less efficient than the offshore fishery. He felt that the basis for such remarks should be qualified. Efficiency of catch should be based on catch per unit fuel, employment generated, quality of fish, etc.

Market variations should be used to qualify any statement that the trawlers produce a more valued and more marketable product (fresh frozen versus salted fish). There are errors in some of the tables. While this may, in part, result from old data, there were some that were wrong. The table of facilities funded by government assistance did not record two stages in the Straits, at least one of which had been in existence for a while.

L. Jackson said that the accumulated effect of these types of errors was to minimize the importance, productivity and value of the inshore fishery. He urged that, if the IEA was rewritten, the fisheries section should be examined much more closely. He was concerned that, if the role of the fishery was minimized, there could not be a valid comparison of the fisheries versus offshore oil in the Labrador economy.

Don Karasiuk replied that the figures on efficiency could be qualified on the basis of the poundage of fish caught per man. The values of the market products were based on dollar values. Based on world markets, people were willing to pay more for fresh frozen than for salt fish.

Don Karasiuk noted that it is made very clear in the socio-economic section of the IEA that straight monetary analysis does not apply in Labrador because there are other values, associated with lifestyles, which have to be accepted. If the economy is gauged on cash value, i.e. per capita household income, the figures are below the poverty line, however, this does not account for use of country foods, the freedom to build a house anywhere without paying a land value for it, and so on. These are parts of the notion of the pluralistic economy that the IEA emphasizes.

D. Karasiuk continued to say that it was not the intention of the IEA to downplay the value of the inshore fishery. He observed that one of the problems with statistics is that it is expected that they will be read as carefully as they were written. There was a further problem of the time interval between the data (1979) on which the consultant's report was based, and the time taken for writing, publication and review of the IEA.

Don Karasiuk went on to summarize the OLABS program for marine mammals. Included were aerial surveys of white whale and seal distribution along the Labrador coast; analysis of whale sightings; and systematic recordings of marine mammals sighted during the OLABS seabird surveys.

This information represents a considerable improvement in the data base, although there is still much to be learned, for example, on the areas critical to marine mammals. Systematic studies have not been done of the feeding habits of ringed and bearded seals through the OLABS program.

Environmental Impacts

The discussion of impacts was led by Don Karasiuk. He separated impacts into the categories of expected (those resulting from normal operations) and unexpected (those resulting from some accident or catastrophe).

A large section of the IEA dealt with the behavior of oil on the sea surface. A slick trajectory is the path that a patch of oil on the sea surface would take.

Don Karasiuk presented an overview of what might happen in the event of a blowout. Oil blowouts always consist of both oil and natural gas, in a ratio of about 100:1. Very small droplets (less than 1 mm) of oil from the blowout would be carried quickly to the surface by the buoyancy of the gas. On the surface, the oil would accumulate and eventually would form a slick. If the blowout were to continue during winter, oil would accumulate under the ice. As ice formed, oil would be trapped in it, and move with the pack ice.

In open water, the oil would probably break up into several slicks of variable thickness. The slicks would be driven by currents, winds and the force generated by the earth's spin. Under average conditions oil would go offshore. In conditions of extremely high easterly winds, the oil could come ashore in less than a day.

A blowout might persist for several days or several weeks, after which time many 'bridge' or close themselves out, although the worst case at the Ixtoc well in the Gulf of Mexico lasted for eight months.

The oil on the sea surface changes over time. Evaporation of the lighter fractions, which are more toxic to marine life, leaves a thicker sticky residue. A small

amount (2%) of oil may dissolve in the water column. Some oil would be emulsified in the water, other parts of oil would accumulate as tarry masses that would drift and not decompose readily.

Some degradation would result from sunlight as well as from the activity of oleoclasts (bacteria that can digest oil) which are most common in heavily polluted areas. The rates at which different portions of oil disappear over time are variable. For example, it is estimated that 30 days after a blowout, less than 20% of the oil would be left. This would be a tarry substance, relatively resistant to degradation.

Mr. Karasiuk went on to review the impacts of oil on different life forms from plankton to whales. Following this presentation, considerable discussion took place. Enoch Obed said that the question of tainting is important to people on the coast. He asked if anybody had eaten seal or bear meat after oiling experiments. Don Karasiuk said that he didn't believe this had been done. That fish can be tainted by oil is known, however, tainting in other species has not been reported or researched.

Clara Michelin referred to the assumption made by D. Karasiuk that noise pollution (drill rigs) would be very slight, if not non-existent, and another comment that helicopter noise could have serious effects on nesting colonies of birds. She felt that drawing a parallel between the noise of a helicopter and a drill ship, noise pollution could be slight, but this has not been shown scientifically one way or the other.

Don Karasiuk said that, with respect to helicopters, he had wanted to stress it was not the volume of noise but its sudden occurrence which could create a panic reaction of a colony nesting on a cliff. The sudden noise causes the birds to take flight knocking eggs and young from the cliffs to the sea. This is a major concern that has been expressed by the Canadian Wildlife Service.

The effect of noise from boat traffic in the Beaufort Sea was studied to see whether white whale migrations between the Mackenzie Delta and Banks Island would be affected. The whales were not disturbed by up to 20 vessels per day, but at greater traffic levels, the whales would avoid the area. There were differences, however, between the two boats (a large one, similar to a supply boat; and a motor boat of the same size used by hunters in the Mackenzie Estuary). The whales avoided the smaller boats which they apparently had come to associate with hunters.

Clara Michelin said that the Greenland people have made it clear that they themselves, with their boats, have scared all the animals away from the bays and inlets. On a large scale, in open water, there may be a problem of a marine mammal communications being interfered with by noises from other sources, but this is not known yet. Don Karasiuk agreed with Clara Michelin that the effects of noise have not been proven.

Judy Rowell commended Don Karasiuk for having done a good job of distilling the information in the IEA. She noted, however, that the IEA had not addressed the effects of fuel oil spills. Don Karasiuk said that this was not dealt with because fuel oil spills are a smaller version of the oil spill scenario in the IEA. A spill of Arctic or marine diesel, which is lighter and would evaporate faster, and which might have a few more soluble fractions, would have effects as portrayed.

Judy Rowell referred to the IEA where it is stated that, should an actual spill event occur, the oil spill trajectory model would have to be replaced with a real-time model. She asked if a real-time model was included in the contingency plan. Wish Robson said that during the drilling season, when there is a potential for release of hydrocarbons, there is a consultant on 24-hour standby who is guaranteed to give Petro-Canada a response within six hours for the likely trajectory of the oil. The consultant would be reporting to Joe Buckley who would be advising the on-scene commander. The consultant would use actual weather observations from the rig, NORDCO weather forecasts, and a prediction model.

Enoch Obed enquired as to how Petro-Canada would protect hunting and fishing resources if it looked like oil was likely to come into an area. Don Karasiuk said that maps of the resources along the coast would be examined first, then appropriate action would be taken. For example, a boom could be strung across a bay where char were fished. If weather predictions indicated that the oil would remain offshore and seas were low, permission might be requested for the use of dispersants; alternatively, in high sea conditions, no treatment would be applied to the oil. Problems associated with deployment and amounts of available manpower and equipment make it necessary to set priorities based on the relative importance of each area.

Enoch Obed asked if Petro-Canada would provide compensation for loss of revenue in the event of an oil

spill. Gary Leitch replied that Petro-Canada is absolutely liable (for damage), be it from an accident or a deliberate action. Petro-Canada has an obligation to settle any claims that are received. Furthermore, Petro-Canada is required to have \$35 million per well per season available for compensation purposes. The costs of all cleanup, whether done by the company or government, are taken from this money.

Neither Petro-Canada nor others in the oil industry have, at this time, a clearly articulated procedure which would help people to know who to approach if there is a problem. It is hoped that this can be developed for the east coast in 1983. Discussions have been taking place with the fishing industry in Nova Scotia and Newfoundland to establish ground rules for determining lost fishing time, value of fish, etc. Petro-Canada's intention is to replace, repair, or pay for damages as quickly as possible.

Enoch Obed asked whether individuals would have to go to court for settlement of claims. Gary Leitch said that the compensation system is set up to avoid going to courts, which is neither necessary nor a solution to the problem.

Bill Flowers asked what proof Petro-Canada would need if, for example, nets were damaged by a supply boat. Gary Leitch said that Petro-Canada would want to see the damaged nets and the location where the damage had occurred.

Bill Flowers asked if local Labradorians had been trained in oil spill response and cleanup. Wish Robson answered that eleven Labradorians, who were seasonal employees, had been trained over the past three years. There are four full-time trained personnel based in St. John's as part of an industry spill response cooperative. In addition, two dozen trained operators are available on a contract basis. In the event of an emergency, Petro-Canada would ask for manpower from the local communities. The trained people would be responsible for the management of the crews and overseeing specific tasks.

Mary Mackey asked if Petro-Canada's liability covered contractors working for them. Gary Leitch said that this was true. If necessary, Petro-Canada could themselves go to court to seek reimbursement, but this would be after damages had been paid by Petro-Canada.

Bruce Boles noted that slick trajectories are used in the IEA as predictive models only until an actual spill

occurred. Don Karasiuk said that the slick trajectories presented were representative of two extremes and the average conditions. The oil spill scenario that was developed considered the whole of Petro-Canada's offshore acreage which is about 800 miles long. Subject to government approval, the Labrador Group could drill anywhere in that acreage. Thus the oil spill scenario does not pertain to any one particular site. The oil slick trajectories are good for making general predictions but in the event of a real spill, it would be necessary to get a specific indication of where the oil was likely to go.

Bruce Boles felt that these predictions were relied on heavily in the IEA. He noted that, based on information in the IEA, it appeared the data base for the slick trajectories contained some deficiencies. Winds and currents were the only parameters used. The model used actual records derived from the OSV Bravo. John Miller earlier cautioned about the applicability of these data to the Labrador Shelf.

There are other problems with the model:

- the model does not account for pack ice or shore-fast ice;
- there are no long-term continuous weather records for the Labrador coast;
- the duration of the offshore drilling program is too short to provide meaningful statistics;
- current data is available only from the summer months; and
- weather and water current data are inadequate to assess seasonal variation.

Don Karasiuk said that this was why caution had been written into the description of the model. The slick models used in the IEA represented the state of the art. All existing slick trajectory models rely on winds and currents, and some of the more sophisticated ones also include the force of the earth's spin, as was noted earlier. Last year much effort was put into the development of a technique that would account for the entrainment of oil in pack ice. Measurements of pack ice movement are used to determine movement of oiled ice. Landfast ice protects the shore, and this indicates that there is a zone that should be incorporated in the model for certain times of the year.

The generalities that can be derived from the model are that under average conditions, oil is likely to stay offshore, however, under extreme conditions, oil could go onshore in less than a day. B. Boles was asked why Petro-Canada had not continued to update and refine the modeling exercise using, for example, updated current information. D. Karasiuk replied that slick models were only used for making generalized predictions, so there would be no point in reworking a model which was based on historical information. He emphasized that real-time capability, not updated slick trajectory models, would be required and used in the event of an actual oil spill.

Doug Saunders asked about the effects of oil dispersants on the environment. Don Karasiuk acknowledged that the absence of a discussion of the effects of oil dispersants was an oversight of the IEA. Much better information on this topic is now available through the Baffin Island Oil Spill (BIOS) program, which has examined the effects of oil, and oil and dispersants in the Arctic nearshore environment. It has been shown that dispersants drive oil into the water column. The effect of oil in nearshore environments is magnified by dispersants by enlarging the area in which toxic levels of oil occur.

The Canadian Wildlife Service has studied the effects of oil, and oil and dispersants, on birds. There are concerns that dispersants could also affect the natural oils that protect a bird's feathers. Dispersant-oil mixtures adversely affect young birds. New chemical dispersants have been formulated that are much less toxic than earlier ones, such as those used on the Torrey Canyon oil spill (England).

Dispersants may be a viable option in some cases, for example, when the oil is far offshore (i.e. at source of blowout), but is likely to head onshore. The decision to use dispersants rests with the Environmental Protection Service (EPS), and a company is required by law to have its permission before using dispersants.

Judy Rowell asked for clarification of a statement in the dispersants section of the contingency plan: "Under existing regulations, approval to use dispersants must be given in advance from the Environmental Protection Service in St. John's, except where an oil spill poses a threat to human life or property." Wish Robson said that in a situation where the oil was, for example, a potential fire hazard, then the decision to use dispersants would be made by the on-scene commander. The approval for dispersants

can be sought concurrent with the application of dispersants as long as the report is made directly to EPS. The on-scene decision would have to be a valid one, otherwise the company would be open to prosecution.

Bruce Boles noted that the original predictions of oil spill trajectories made in the IEA were based on information that is recognized as being limited. He said that the point he had been trying to make in earlier discussions was to question whether these predictions were still valid in the light of new information. Joe Buckley pointed out that Petro-Canada intends to review the existing predictive model in the light of the new data. A few case studies will be done to see what the difference would have been if the revised data base had been used, and if these differences were significant enough to warrant the re-running of the entire exercise.

The new water current information is not substantially different from what was known at the time of the original slick trajectory modeling exercise (1980). A doubling of the mean current speed would represent the order of magnitude required in order for there to be a significant difference in the results of the modelling exercises. Joe Buckley concurred with D. Karasiuk that, for the purposes of constructing a scenario, the change of results would probably be negligible, however, this will be verified.

Socio-economics

Gary Leitch, head of Petro-Canada's Social Impact and Community Liaison Section, described the historical and political context in which social impact assessment takes place. By so doing, he hoped to put the present exercise in context. Following the United Nations Conference on the Environment in Stockholm, Sweden (1972), pressure was put on the Canadian government to develop environmental impact assessment procedures. At that time there were no formal procedures for citizens or interest groups to follow in commenting on the environmental impacts of proposed major resource development projects.

In December 1973, an Order in Council of the Federal Government established FEARO, the Federal Environmental Assessment Review Office, and EARP, the Environmental Assessment and Review Process. The process has evolved rapidly over the last ten years. The original EARP process was almost exclusively oriented to the biological environment. It was essentially a private process in that

groups of company scientists worked with government scientists in making decisions about the impact assessment before public hearings were to take place. There were no public hearings prior to the submission of an impact assessment.

This period of private negotiation went on for seven years. During this time, public groups, especially native peoples' associations and CARC (Canadian Arctic Resources Council) expressed increasing displeasure because the process was 'private', but, more importantly, did not extend to consider how the impacts on the biological and physical environment would affect the people using the resources of that environment.

The purpose of the EARP process is to provide advice to the Minister (of the Environment) and to Cabinet, and so is by definition a political process. It is becoming more public and the public are becoming increasingly sophisticated in their demands with respect to the process.

In the past two to three years, there has been a strong swing of the pendulum. An Environmental Impact Statement, for example, on oil production for offshore Labrador, today would have a social impact assessment section as big as, if not larger than, that for the physical and biological environments.

In 1979, the Department of Energy, Mines and Resources requested that Petro-Canada produce an IEA for offshore Labrador. At this time little thought was given to a consideration of the social environment. The greatest portion of the OLABS program funds were spent on biological and physical environment studies that form the data base of the IEA.

Later it was realized that something had to be included about people. The historical data base for adequate impact assessment didn't exist, and the funds required for such research weren't available. What was available was standard Statistics Canada data on the population (i.e. age distribution) and the fishery (tons of fish caught; landed value), but these were gross figures for the whole of Labrador, not for each community.

A report prepared by the Labrador Institute in 1980 was available to include in the IEA. The comments made at the scientific review of the IEA indicated dissatisfaction with the social section of the IEA, which was based on this report.

Mr. Leitch went on to highlight two conclusions considered by Petro-Canada and the government to be most important. The first is the notion of economic pluralism of the people. Their livelihood comes from a variety of sources (fishing, hunting, wage-labour, etc.), not from one source as for many people living in an urban area. It is important for Petro-Canada to understand this if people are expected to participate in exploratory activities, the availability of a local labour pool will depend on the relative attractiveness of traditional activities such as fishing compared to that of the oil industry. The government requires that Petro-Canada hire as many local people as possible. This policy makes some sense economically. It does not make sense, however, that people be discouraged from pursuing a traditional activity based on a renewable resource to come to the oil industry, which is highly volatile (here today, gone tomorrow) and based on a non-renewable resource. It would be at least 20 years before oil could be produced if there were a major discovery. The oil industry, in the light of people's pluralistic lifestyle, may not be the best of the available options.

The second point is the significance of the recent changes in the fishery. The social impact of changes in the organization and technologies of the fisheries will be far more fundamental than the oil industry in affecting future generations. The establishment of fish plants and the opportunity they provide for women to work outside the home, represent changes that are often taken for granted, but which are significant.

Gary Leitch then addressed the manner in which the social impact section of the IEA would be completed if it were began again, given the rapidly changing political environment and the increased importance of the use of local resources to the government. Two fundamental sets of information would be required to produce an adequate social impact assessment. The first of these would be related to natural resource harvesting and its values. Until it is known what people harvest locally, it won't be known how much it is worth, and what the real wealth of Labrador people is.

A second need for an impact assessment is an understanding of the household economy. The official statistics do not record transactions that are basically of an economic nature. Transactions such as helping a relative fix a stage, or sharing caribou meat, would have

a comparative value in an urban area, i.e. when a carpenter would have to be hired because a person is too busy to do it himself. These transactions happen daily, they are expected, and they have a value, both economically and socially. An understanding, of firstly, how these processes occur and, secondly, of how activities such as those of Petro-Canada will interfere with these processes, is needed.

An adequate social impact assessment cannot be completed without renewable resource harvesting data and a detailed understanding of the local economy. In order to generate these data, a considerable invasion of privacy is required. People have to be asked questions such as whether they shoot geese in the spring, or harvest birds eggs, and how much money they really made last year. People might well be reluctant to talk about such things, however, without such information, Petro-Canada would not be able to do an adequate social impact assessment.

The alternative to a detailed questioning program on how Petro-Canada should conduct its business in the community would be a solicitation of opinions, such as can occur at this seminar. While this may not constitute a scientifically acceptable social impact assessment, it would provide an understanding that could allow both communities and companies to do their work in a mutually satisfactory way.

Gary Leitch concluded that, if the seminar could achieve a degree of communication, and if some sensitivity to each other's problems could be developed, then everyone would have come a long way.

Tony Williamson said that he had appreciated G. Leitch's presentation, which was presented with clarity and sensitivity. He was glad that the issue of the invasion of people's private lives in order to collect necessary data had been addressed because it was important to be aware of this issue. Many government agencies, as well as industry and Petro-Canada, are continually asking questions of the Labrador people. The process is a difficult one, especially for the communities.

Mr. Williamson went on to state that even earlier than two years ago there was a recognition of the importance of the social, economic and political factors in the assessment process. He suggested that the public is perhaps now demanding more sophistication in social impact assessment.

On the issue of invasion of privacy, Mr. Williamson noted that there is data now available that would not require the type of probing referred to. For example, the LIA have produced some household economic data that two years ago wasn't public information.

Two points were made during the scientific review on the IEA socio-economic section (to which the Labrador Institute had contributed). One was the lack of data in that report. The original report did, in fact, have some of the specific data that was being requested by some of these scientists, i.e. age, sex pyramids, sex ratios, movement of people, returns in the fishery, etc. Secondly, the question was raised of why social problems were not highlighted. In fact, these were included in the original report of the Labrador Institute to Petro-Canada. Petro-Canada's response to this second comment was that a discussion of social problems was not included because it was perhaps rude to do so and because Petro-Canada had not generated the problem. However, these problems often become accentuated with large scale, new activities.

The Labrador Institute for Northern Studies was pleased that Petro-Canada had given them the liberty to distribute the report. Some of the major interest groups have had an opportunity to see the social impact section and the social problems in their original context. Tony Williamson said he regretted that some of the original material had not been incorporated in the IEA, in particular the graphs illustrating the tremendous mobility of people on the Labrador coast.

Bevin LeDrew said that, in preparing for the seminar, a Summary of the IEA had been written to make it easier to deal with the large quantity of information produced. Similarly, the IEA was itself prepared from a vast number of reports, including the one from the Labrador Institute. He said that the difficulty here was deciding what to edit from these reports.

Fran Williams said that she was somewhat dissatisfied that so little of the IEA dealt with social impacts, because it is the people who will be affected by any impacts from the oil industry. She asked what long-term studies Petro-Canada intended to do. Gary Leitch replied that a problem with long-term studies was the nature of oil and gas exploration activity. An operation such as Petro-Canada's is viewed on a two-to-three-year basis at the most, and with respect to some things on an annual basis.

Petro-Canada has initiated two projects. The Renewable Resources Atlas has just been completed. This is the first time in Canada that a significant amount of social information has been placed at the disposal of the contingency planners. What has been done in the Atlas is to specify where the resources are and how people harvest them. The Atlas can be used for decision-making in the event of an oil spill, i.e. it will show if the mouth of a bay is too wide to be boomed or whether a beach is accessible by ships. The information from the Atlas is being computerized and put into a data bank together with other material. Gary Leitch said that as long as Petro-Canada is in Labrador, the Atlas will be updated every 2-4 years, whenever people have indicated that their harvesting patterns have substantially changed.

The second project again reflects the changing political context. There has been an increased emphasis on local hiring and training. A detailed study of the labour market and labour availability on the coast of Labrador has been conducted during the past two months. Twenty-five percent of the households have been sampled to determine what people do, what their education and skill levels are, and what work they want to do (traditional versus oil industry). This study should be completed in early 1983.

For the first time this year a significant number of coastal people were working offshore and hopefully there will be more next year. Petro-Canada hopes to train some of these people to attain higher skilled jobs next year. These efforts, however, are not part of a long-term plan. They are practical, here-and-now programs.

Judy Rowell referred to G. Leitch's response about long-term studies. She said the LIA appreciates the contingency priority, but also says that this is a one-dimensional approach. Part of the position that the LIA is taking is that Petro-Canada has a responsibility to look further. In the IEA it is stated that a computer analysis of the economic impacts of exploratory drilling on coastal residents is not possible because many factors have not been assessed. These include determining the costs of foregoing the harvesting of local resources, estimating off-season resource harvesting by oil rig workers, and establishing realistic economic multiplier effects from the injection of additional cash.

She said that these were not really difficult things to look at. There has been ten years of offshore

exploratory drilling, and while it is recognized that there had not been a formal review process of that activity, this does not justify continuing the pattern by not looking at these types of things.

Ms. Rowell challenged the statement made by Petro-Canada at the scientific review to the effect that Petro-Canada had neither caused nor exacerbated social problems. She thought that this was not exactly true, because there are perceptions on the coast related to expectations, which, in some cases, may be unrealistic. Some fishermen have had problems with oil spills which fouled their nets. They assumed that Petro-Canada (or its contractors) had caused these spills. These have contributed to people's frustrations.

Many of the socio-economic issues that were not assessed by Petro-Canada can be assessed. LIA is taking the position that the study of these issues should be a priority. Under the terms of the agreement that Petro-Canada is signing, they will be here for another five years. There is a possibility, remote or otherwise, of production. It is only a responsible corporate attitude to make a commitment to start to establish a baseline now that can be used to monitor these factors. This would not be capital-intensive or labour-intensive, but it does require the acceptance by Petro-Canada of the legitimacy of doing this, and the commitment to determine how the indicators can be identified, and the establishment of a monitoring program. Ms. Rowell felt that it would be to the benefit of Petro-Canada and the people of the Labrador coast to undertake such an effort.

Gary Leitch disagreed that some of the unassessed factors could be easily assessed. He noted that an analysis of economic multipliers requires an incredible amount of detail on the local economy. The system to do the analysis is in place and takes 20 minutes to do, but this can't be done without knowing the sort of details which require an invasion of privacy. Judy Rowell suggested that further discussion take place in the workshop.

L. Jackson said that he appreciated G. Leitch's remarks about the invasion of privacy in trying to study local economies, however, people will often welcome some kinds of studies if they are seen to serve their purposes. One of the roles of the Labrador Institute is to do studies that serve the interests of the communities, as well as the government and companies who want to know

what it's like in Labrador. He mentioned three examples where people willingly cooperated: the Resource Harvest Study, which studied the range and persistence of land use and resource harvest patterns; the Food Availability Study, which assessed the value of country food in the local economy; and the Lake Melville Seal Study, which considered the impact of icebreaker traffic.

The plenary session was then closed and three workshop groups formed to consider the IEA and meet with Petro-Canada staff and resource people.

3.0 WORKSHOP SESSIONS

3.1 Workshop Group A

Chairperson

Rapporteur

Denise Trainor LEM Ltd.

Participants

George Ashini	Davis Inlet Band Council
Garland Curl	Fox Harbour
Clarus Flynn	Southern Labrador Development Association, Forteau
Bart Jack	Rural Development Officer, Happy Valley-Goose Bay
Wilfred Lane	Community Council, Postville
Howard Mesher	Eagle River Development Association, Cartwright
David Nui	Davis Inlet Band Council
William Russell	East Shore Labrador Development Association, Williams Harbour
Hollis Yetman	Southern Labrador Development Association, Red Bay

Resource Persons

Duncan Hardie	Canada Oil and Gas Lands Administration, Ottawa
Ray Hawco	Petroleum Directorate, St. John's
Conrad Hiscock	Department of Regional Economic Expansion, Goose Bay
Bruce Johnson	Canadian Wildlife Service, Sackville, New Brunswick

Petro-Canada Resource Persons

Session 1: Bruce Berry
John Hunt
Wishart Robson

Session 2: John Miller
 Wayne Piercley
 Wayne Speller

Session 3: Joseph Buckley
 Donald Karasiuk
 Gary Leitch

Session 1

George Ashini began by asking what was the purpose of the seminar. John Hunt replied that because this was the first time Petro-Canada had produced a document such as the IEA, they organized this meeting so that the delegates could understand more about what had been done. They could then comment on the contents of the IEA and make suggestions on ways it could be improved. He asked if Petro-Canada's community consultation process was adequate and for suggestions to keep communities better informed, adding that the seminar was part of the information exchange process.

George Ashini felt there should be more public involvement and that people would be interested in having a seminar held in each community. Wish Robson replied that the seminar gave community representatives the opportunity to discuss concerns between themselves as well as with Petro-Canada, but to conduct a seminar in each community would be unrealistic. He suggested that Wayne Piercley would be prepared to go to the communities and assist the delegates in reporting what had been learned at the seminar.

Hollis Yetman said that in Red Bay there was very little education about offshore oil and gas and questioned what would happen after reporting back to the development associations and councils. John Hunt replied that the community consultation program, with Wayne Piercley, was an on-going process. He suggested that Bruce Berry could be contacted for answers to specific questions that Wayne Piercley might not be able to answer. Hollis Yetman agreed that taking the seminar along the coast would not be realistic. John Hunt said he appreciated the task which the delegates faced. The most Petro-Canada could hope for at this time was that more people would begin to think seriously about offshore oil and gas.

Clarus Flynn asked about job information going to the communities. John Hunt replied that this was the responsibility of Canada Employment and Immigration Centre (CEIC) and that Petro-Canada would ask CEIC to assist in hiring. In response to a question from Mary Mackey about the location of CEIC offices outside Happy Valley/Goose Bay, Con Hiscock replied that there is one in Southern Labrador, an outreach office located in Port Hope Simpson. There are no offices along the Northern Coast (Mary Mackey) but CEIC officers travel to these communities (Con Hiscock).

George Ashini asked why the public wasn't involved when operations began 10-12 years ago. John Hunt replied that, as Gary Leitch had identified in his presentation, contact with the public had not been a priority in the beginning, but that Petro-Canada was now working to change this. He agreed with George Ashini that it was important to work seriously with the communities and that there should be more public involvement.

George Ashini said that the IEA document as well as the reports on which the IEA is based should be sent to the communities. John Hunt said that he could provide Petro-Canada information, but didn't know if information from Total Eastcan, etc., covering the first ten years of operations, could be provided.

Wish Robson said, in response to a request from Con Hiscock, that the contingency plan could be distributed publically. It requires constant updating, however, as names and phone numbers of those involved in contingency and cleanup operations are frequently changed. This updating could not be provided to a large distribution list.

Wish Robson explained that the contingency plan is an information package that allows a timely and orderly response to all potential emergencies in offshore Labrador. These emergencies include accidents or death on the rig, missing persons, damage to the drill ship, wellhead problems, and oil spills. The contingency plan enables people in St. John's and Calgary to assess the magnitude of the problem, and respond appropriately. Drilling people have separate plans in their operational manuals dealing with procedures to be followed in the event of a wellhead problem.

The IEA is part of the contingency plan. Petro-Canada would rely on this document for information on biological resources at risk in the event of an oil spill. The document is there to show that the company appreciates there are resources at risk. The people in the company (Wayne Speller, Joe Buckley and others) would be relied on to provide the people responding to the spill with timely information on the birds, marine mammals, fish population and fishery. People such as John Hunt and Wayne Piercley would be called upon to describe what might be happening in the communities.

The Contingency Plan includes a section on Shoreline Protection and Cleanup. This section is made up of a

series of charts and maps that show the entire coastline of Labrador. These maps are based on twenty years of mapping and other available information. Subsequent to the preparation of the IEA, sections of the coastline, particularly those around all the communities, were recorded on videotape. These videotapes are now in Calgary and will shortly be available in St. John's. The videotapes show everything along the shoreline, in the nearshore and backshore regions. They would enable Petro-Canada to do some pre-planning but more importantly, in the event of a spill, it will enable Petro-Canada to look at an area of the coast and know in advance what can be done. Apart from the contingency plans, the best resources in Petro-Canada are well-trained people who are familiar with the area of offshore Labrador.

George Ashini asked if there were people in each community trained in oil spill response. Wish Robson replied that there were not trained people in every community. Petro-Canada prefers to train its employees, including those working on a seasonal basis because they would be available if there was an emergency. Training persons who are not employees is often not practical since, in the event of a spill, these people could well be working at their own activities, such as fishing, and, consequently, would not be available when needed. The people Petro-Canada has trained would, in the event of a spill, go to the nearest communities and hire local help.

In response to a question from Con Hiscock, Wish Robson replied that there were people in Goose Bay trained to deal with oil spills. Mary Mackey asked how fast Petro-Canada could respond to a fuel oil spill. Wish Robson answered that if a fuel spill occurred in open water away from the shore, the oil would probably be evaporated or dispersed before a team could arrive. The response time for spills close to shore would be 12-14 hours, a period equivalent to the time necessary to bring trained people in from St. John's, if conditions for flying are good. One and a half days would be needed to bring vessels in.

George Ashini asked what types of equipment were available for oil spill cleanups, and how fast the procedures would take. Wish Robson replied that Petro-Canada is a participant in an industry cooperative which maintains an oil spill equipment base in St. John's, where \$2.5 million of heavier offshore equipment and a smaller amount (\$.5 million) of equipment for nearshore areas is housed. Five full-time people are employed to

maintain the equipment and participate in oil spill cleanup exercises. The larger equipment is to be deployed from a supply vessel. Under ideal conditions (low waves, oil concentrated in one area) one piece of equipment (of which there are two or three) can pick up 400 tons of oil per hour. Transferring and storing such amounts of retrieved oil could be a problem, but the capability to handle large amounts of oil is there. When conditions are least ideal (oil not as thick, stronger winds and waves), special booms are used to contain and concentrate the oil in one place. Under high winds and heavy seas, the oil becomes quickly and effectively dispersed by the waves.

In response to a further question from George Ashini, Wish Robson explained that St. John's serves as a central location for responding to spills in offshore Newfoundland, Labrador, and Nova Scotia.

Bart Jack asked about the containment and subsequent treatment of oil spills. He felt that burning the oil was merely transferring the pollution from one form to another and wondered if, because of weather and wave conditions, booming was really the most effective method of containment. Wish Robson replied that normally burning oil from a spill is not a very viable option, because it would endanger operations such as relief well drilling. If the oil caught on fire, there wouldn't be much choice. Burning oil under some circumstances might be good. Less oil becomes mixed into the water column, which would reduce the contamination of fish products and lessen the oil in sediments and along shorelines. Soot and ash in the immediate area would be dispersed by wind.

Wish Robson continued to say that all options would be examined before appropriate action was taken. The primary options are:

1. Containment with booms, which can be operated safely and effectively in seas of 3-4 m. While there are conditions in which booms cannot be used, Petro-Canada has access to the best equipment in the world, which can operate under the widest range of conditions.
2. Dispersants. These remove oil from the surface into the water column. Effectiveness varies with water temperature and the nature of the oil. Approval from the Department of the Environment is necessary for the use of dispersants. A

small test for effectiveness would be done, and approval for large-scale use would depend on the results of the tests, the location of the spill and biological activity. Dispersants would not be used if there was risk to the fisheries or if the spill was in a nearshore area. In water depths greater than 30 metres, dispersants would not damage bottom life.

Garland Curl expressed concern that oil on beaches (such as along Porcupine Strand-Trunmore Bay, where there is a 60 km beach) would affect seabirds for a long time if not completely cleaned up. Wish Robson replied that the length of time oil stays on a shore is proportional to the wave energy of that shore. He explained that sand beaches are easier to clean up than marshes or lagoons. In these areas, cleanup procedures may be more damaging than leaving the oil. On a well-exposed beach, cleanup would not be as high a priority because the beach would self-clean over a short period of time. He noted that in studies on different types of Arctic beaches (sands, mud flats, cobbles and boulder beaches) where there was a maximum of eight weeks of open water, even those beaches in fairly calm environments had cleaned up on their own.

George Ashini asked what the chances would be of mammals going back to an area after an oil spill. Wish Robson said the chances would be good if a spill stayed in open water. The only real long term damage would occur if oil settled out in nearshore areas. Shellfish and other bottom organisms, and the animals feeding on them would be affected. There could be a long-term problem for animals, such as ducks, that use the beaches. In response to a question from Hollis Yetman, Wish Robson said the many birds, seals and ducks would come back to previously oiled areas if their food sources returned. George Ashini asked about the chances of seaweed growing back. Wish Robson said that, following major spills in France and Norway where plants had been killed by oil coming ashore, regrowth had occurred in a couple of months. In Labrador, with a shorter growing season and colder waters, the process would take longer.

In reply to questions from George Ashini and Garland Curl, Wish Robson said that adult fish tended to avoid oil, although the flesh might become tainted by high concentrations of oil. Fish eggs and larvae could be killed by oil, and local long-term effects might occur if oil came into a major inshore spawning area.

Garland Curl asked what types of damages caused by an oil spill would be covered by compensation. Wish Robson answered that for every well drilled, there is: (1) \$75 million insurance to cover expenses and damages from oil pollution; and (2) a \$30 million bond posted with the Federal Government to pay for oil spill damage claims in the event that Petro-Canada was found to be either not paying claims or was performing unsatisfactorily. Claims for damaged nets and fishing gear would be settled quickly, even if the damage were caused by Petro-Canada's contractors.

George Ashini asked if there was compensation available for loss of hunting. Wish Robson said that such a settlement might have to be decided by the government or through the courts, because loss of income must be estimated. John Hunt said that out-of-court settlements, which are a fairly common practice elsewhere, would be arranged if at all possible. He cited an example in Alberta where a trapper, the game warden and industry came to an out-of-court decision on a reasonable compensation. Wish Robson said that compensation for or replacement of damaged gear would be rapid, especially during the fishing season. Compensation for lost revenue might take longer, and J. Hunt added that this type of issue hasn't occurred yet in Labrador.

Garland Curl asked if the source of an oil spill can be determined. Wish Robson said that the source of a slick can often be determined by a technique known as "finger printing" which has been used frequently in major ports. Oil from the slick can be analyzed and compared to the analysis of oil from vessels in the area.

George Ashini asked if a hunter would be given another hunting area if his traditional one was destroyed, and what the hunter would do while compensation was being settled. John Hunt replied that each case would have to be examined individually to reach a mutually acceptable solution. He said that something would be done quickly in such an event. Sometimes, for example, hunters have been flown into other areas.

Mary Mackey added that G. Ashini's concerns were quite real. The Labrador coastal people depend quite heavily on resources such as marine mammals and seabirds for their food supply.

Following the discussion of effects of oil on fish, mammals, plants and beaches, John Hunt said that the

issues of long-term effects were not easy to deal with. He emphasized that in the event of a spill Petro-Canada would do its best to quickly provide compensation.

Hollis Yetman said that he didn't think it would ever come to the point where people along the Labrador coast could be fully compensated. Because the birds and seals migrate along the coast, a spill that affected wildlife in one place, could affect everybody.

Hollis Yetman enquired about the numbers of Labradorians hired by Petro-Canada. At present, Petro-Canada employs about 20 Labradorians in offshore work, and more with onshore bases. Hollis Yetman said that while there is a lot of interest in employment, there seems to be little information available. The Red Bay Council felt that this responsibility rests with Petro-Canada. A further problem is that seasonal workers, such as fishermen, fill out U.I.C. reports for work they are qualified to do (i.e. fishing) rather than work they might be interested in (i.e. offshore oil).

John Hunt replied that Wayne Piercy would be the person at Petro-Canada to contact for information about jobs. There are positions available that require no training. A training program for some of the Labradorians who have been working on the rigs is being planned for this winter. This will give them an opportunity for advancement. It is expected that there will be an increase in the number of Labradorians employed in the offshore.

Hollis Yetman referred to concerns about the oil industry taking people away from the fishery and explained that, in fact, government has said there are too many people employed in this sector, which has made it very difficult to get into the fishery, especially for young people. Con Hiscock suggested there should be a list of offshore and onshore jobs available in the oil industry pertinent for Labradorians.

Hollis Yetman suggested that additional people could be hired to do community liaison work. John Hunt replied that there are no plans at this time to increase the number of community liaison people in Labrador.

Bart Jack asked about job opportunities during the drilling season. Bruce Berry said that 90-100 people were employed on each rig, and about half of these were Canadians. This includes a crew of 12 for supply boats.

There are 20-30 positions for which no training or experience is needed. A person becomes qualified for a full-time position after several seasons on a drill rig, and it would be expected that such a person would work year-round, in other locations around the world during winter and spring. At present most of the experienced workers come from outside Canada. This changes if the rig operates for a number of years in the same area. For example, for one rig that has been operating for three years off Newfoundland, over 90% of the workers are Canadians.

In response to a question from Hollis Yetman, Bruce Berry said that it is only in the last few years that an effort has been made to recruit Labradorians. He understood that up until a few years ago, there wasn't much interest in offshore work. Con Hiscock agreed, commenting that historically Labrador people haven't left home for the type of jobs, such as shipping, that would give them the experience necessary for offshore work.

John Hunt went on to say that there appeared to be objections against offshore development coming from the people in Labrador. In his view people wanting to work with the oil industry were afraid of being branded in favour of development. Furthermore, a career in this industry usually means moving out of the community at some time.

Bart Jack stated that native groups in Labrador have been quite opposed to any sort of development, adding that it was not fashionable to be involved in a project to which you were opposed at the same time. John Hunt said that the political (anti-development, land claims) practical (jobs for money) split was common in the Northwest Territories. There people may work for one or two shifts on the rigs and leave once they have earned enough money to meet immediate needs.

Bart Jack said that Labradorians, especially native people, are going to have to look seriously at the economic value of the oil industry. At present there is a lot of opposition to development of any sort, but maybe this is because in Labrador there has not been enough information provided by the proponents for people to make the necessary decisions. Bart Jack agreed with John Hunt that perhaps people were afraid of the answers.

George Ashini asked what the chances of an oil blowout would be. Bruce Berry said that while there are a lot of numbers (1 in 10,000; 1 in 20,000), it is hard to be specific.

Hollis Yetman asked about disconnecting procedures. Bruce Berry replied that all the marine riser is taken up. The blow-out preventor (BOP) and the well-casing below this remain. There is only a remote chance for a spill to occur during the disconnect procedures. He continued to explain relief well drilling, which takes place when the original well cannot be re-entered. The rig will begin drilling a new hole from about one-half mile away, at an angle to intersect with the previous well bore. Angled drilling is common in some offshore production areas where there is one platform and a lot of wells.

In response to questions from Hollis Yetman, Wish Robson stated that oil from a blowout will take only a couple of minutes to reach the surface. Oil droplets are carried upwards in a cone-shaped plume by gas bubbles, which are almost always present. The deeper the water, the greater the area covered by oil once it reaches the surface.

George Ashini asked what quantities of chemicals were used in drilling, what happens to these in a blowout, and would these kill any animals. Bruce Berry replied that the quantities of chemicals vary: of gels, 20 tons per well might be used; barite, used to weigh the mud, varies a lot, 20-500 tons per well. These chemicals are contained in the drilling mud. In a blowout these would probably be spilled overboard. Because they are so diluted, they would be of little concern, however, he acknowledged that he was not an expert in the area of toxicities but said that if a lot was dumped in one place, there might be some lethal effects in a very localized area. Usually dumping from the surface in deep water meant that the chemicals were thinly spread over a wide area of bottom.

Con Hiscock asked where Petro-Canada obtained the material used in drilling muds. Bruce Berry said that gels come from the United States. Barite is from the Buchans mine in Newfoundland, while other chemicals are from world-wide sources.

During the drilling of a well, the mud used is heavy enough to counterbalance any pressures below. To close off the well, cement plugs are set at various locations in the well. The plugs are typically 150 feet long, and because there is no erosion or degradation from weathering, they are expected to last forever.

Wells are drilled in water depths from 400 to 1,500 feet, and range from 9,000 to 15,000 feet deep. Wish Robson noted that in Nova Scotia, a well is planned to be drilled next year in 4,000 feet of water.

In closing the first session, Bruce Berry asked for a consensus of the community representatives on the question if Petro-Canada should be drilling in offshore Labrador. Hollis Yetman replied that this question had been discussed with the Red Bay Community Council, and most of the councillors had said that if oil was there, it should be left there. Clarus Flynn said that oil should be left there, because technology to produce it is a decade away, and needs are always changing.

Session 2

Hollis Yetman asked for an explanation of the Environmental Studies Revolving Fund. Wayne Speller said that the regulations setting up the Environmental Studies Revolving Fund come under the National Energy Program. Companies that have leases on offshore properties are required to set aside a certain amount of money (yet to be determined) that would be applied to environmental studies in order to allow regulatory agencies to make more informed decisions on whether certain developments should or should not go ahead. There is a joint committee that has one representative each from the Arctic Petroleum Operators Association, the Department of the Environment, and the Department of Fisheries and Oceans. COGLA chairs the sessions dealing with regions north of 60°N. The fund has a ceiling of \$30 million (\$15 million each north and south of 60°N). At the present time government and industry are identifying the issues in the various offshore areas where drilling is taking place; i.e. the Grand Banks, Labrador, Arctic, West Coast, MacKenzie Valley, Eastern Arctic, and Scotian Shelf. The influence of the environment on an operation is important from an industry point of view. A well designed structure is not likely to cause pollution. Agencies such as the Department of Indian and Northern Affairs (DINA) feel biological studies are important in the eastern Arctic. Communities feel socio-economic studies are important. It is expected that within the year projects will be decided upon and funds allocated.

Con Hiscock asked for an explanation of the purpose of the trip to the Pelerin, for the benefit of those who had not gone. Wayne Piercy replied that Petro-Canada had been requested by the LIA to bring representatives from

the LIA and interested communities to the rig and let them see the operations, logistics involved, the jobs and living conditions. In 1981, the attempt to get there failed because of weather, but the trip last summer was successful. The rig at the time was not drilling (poor weather) but everyone had the opportunity to see the rig and its equipment. This was part of Petro-Canada's community consultation process of providing information to the coastal residents.

In response to a question from Mary Mackey, Wayne Piercley said that there are slide shows about offshore drilling and the OLABS programs which have been used in the communities to review the summary document. Films are also available. Wayne Piercley said that he hopes to be able to bring these to high school students this winter.

George Ashini asked who had started the drilling program in Labrador and why. Wayne Speller replied that, in 1972, when there was a realization that there was a probable shortage of energy from oil and gas on land, and since there had been undersea oil and gas finds in other parts of the world (Gulf of Mexico, North Sea) the government asked industry to search for offshore hydrocarbons. Drilling in the Beaufort Sea, High Arctic Islands, Grand Banks, Scotian Shelf, and off Labrador all started at this time.

In response to another question from George Ashini, Wayne Speller said that drilling was not undertaken secretly at that time, but neither Government nor industry then felt it necessary to consult with people either in Labrador or elsewhere in Canada. John Miller added that international rather than Canadian companies were drilling then. The first ten years of drilling was done by Total Eastcan, originally a French company. Drilling is now being carried out by a Canadian company (Petro-Canada), and it endeavours to tell people in Labrador and the rest of Canada what its plans and activities are. Wayne Piercley has been hired by Petro-Canada to make people more aware of what the company is doing.

Wayne Piercley, replying to George Ashini, said that when drilling started, permission was not asked from the Labrador people. If a drilling project was proposed today, hearings would have to be held first.

Wayne Speller added that COGLA, as the regulatory agency, specifies that industry undertake certain work commitments on land leases. There may be no choice but to

do seismic work or drilling. Petro-Canada recognizes that some people are not happy with its activities, but Petro-Canada is being told that as an oil company, certain responsibilities have to be assumed and certain amounts of money spent. Wayne Piercy said that the conditions of the leases also specify that Petro-Canada purchase as much Canadian made equipment and hire as many local people as possible.

Wayne Piercy said that his responsibilities include Newfoundland and all of the east coast of Canada, with the major emphasis on Labrador. He agreed with Hollis Yetman that this is a large area to be covered by one person. Given the seasonal nature of Petro-Canada's operation, it was unlikely that more people would be hired to help him. He said he would like to have good communications set up with each community. In the past 14 months, the community consultation program has concentrated on the north coast (Nain to Lodge Bay) because this is the area closest to the drilling sites. Plans are being made, however, to visit the Straits area in 1983. Wayne Piercy again emphasized that he is available to come into communities for group or public meetings.

Mary Mackey asked Wayne Piercy about opportunities and training available for offshore work. Wayne replied that interested people should contact him for information on the types of jobs, including those with contractors, and the possibilities for training and advancement in the industry. These would also be explained at community meetings.

George Ashini asked what were the chances of Labrador people being hired. Wayne Piercy said that the possibilities are good, but at present the jobs are limited, in part by the extent of the drilling program. As the requirements for local people are increased, the opportunities for jobs will improve. The only barrier, in terms of education, is that employees have a working understanding of English. Mary Mackey asked how many women had been hired for work off Labrador. Wayne Piercy answered that of the 24 people that Petro-Canada had taken on and given the marine emergencies training to, one was a woman. As this was late in the season, only 21 people were hired and as she was one of the last to go through training, she wasn't hired. At present there are three women on the semi-submersible rigs off Nova Scotia and Dome Petroleum has hired women.

Mary Mackey asked John Miller if there would be employment opportunities in the 1983 studies program. He

replied that physical environment studies will not have any field activities in 1983. The data on some of the scientific and engineering implications of waves and climate are being compiled into reports by consultants. Wayne Speller added that this was also true for the environmental studies that are taking place in support of drilling operations. In the weather and oceanographic programs, the field activities are limited to the placement and recovery of markers and wave rider buoys, and these are done by technicians and scientists. Wayne Piercley remarked that many of the studies were run by consultants in St. John's.

Con Hiscock asked what contract services were provided from Goose Bay. Wayne Piercley replied that he had just prepared a list for Bart Jack of 20 services contracted out for offshore activities and that copies would be available. Many of these are presently being supplied by companies based in St. John's because no capability exists in Labrador. Services being provided by local firms or individuals include: air services; shore-based labour (janitors, clerical help, housekeeping staff; equipment operators, mechanics, and foremen in the bases at Cartwright, Hopedale and Saglek); and radio communications (50% Labradorian). The operators on the bases work for a contractor in St. John's. This may be an area where there could be training, however, this is the responsibility of the contractor. Generally, contractors for onshore bases try to hire locally (Labrador). Many of the drilling rig operations such as mud-logging and production, which is highly technical work, are done by international companies.

Hollis Yetman asked if Canada Manpower had any training programs for offshore work. Wayne Piercley replied that a program is to be initiated in January 1983. He said he hoped to have more information about the program in the near future.

Clarus Flynn asked if drift cards go in the same direction as icebergs. John Miller said that the drift cards have been released in summer and late fall, but not in winter. A better method is the use of drifter buoys, which report their positions via satellite. These move generally with the currents, although they may be affected by winds. One of these drifter buoys had gone through the Straits when the ice was in. Clarus Flynn asked if there were variations in the speeds of the currents in the Straits. John Miller said that present information is

limited, but it appears that the speeds increase during storms, when winds are high. He told C. Flynn that the drifter buoys, which float on top of the water, do not affect fish.

Mary Mackey said that there had been in Session 1, a number of questions related to compensation, including the speed with which it was given, and whether lost time or access to fishing and hunting areas would be compensated. She asked how the Canada Oil and Gas Lands Act applied to this issues. Duncan Hardie replied that within the context of the legislation, oil companies are responsible for \$75 million per well in damages from operations and oil pollution. The infrastructures for compensation are now being developed, so details are not yet available. He gave an example from Nova Scotia, where lobster pots in the Bay of Fundy were damaged by a seismic vessel's cable. DFO acted as a mediator, and the claim was settled almost immediately. Government has the responsibility to see that compensation is made as quickly as possible.

The loss of access was a major concern of fishermen in the North Sea (Scotland), although it has not been a major problem. Unless there is major oil production, the area made unavailable to active fishing would be minimal. At present, the data on the feeding patterns and migrations of seabirds and marine mammals is limited and, therefore, it is difficult to predict what impacts rigs might have. There are compensation schemes for cases where there are impacts of oil along a coastline. If wildlife such as ring seals and turres was killed, the losses of these would be compensated.

In reply to Hollis Yetman's question on compensation for time lost fishing, Duncan Hardie said that in the Nova Scotia example, this was resolved. The local fisheries officer estimated the number of nets lost and the potential catch. These estimates were accepted by the company (Chevron) and were used to arrive at the value of the compensation.

Mary Mackey said that from her research in food values, loss of hunting areas could very severely affect some households. There is local variation among food sources and the extent to which they are used, but this information isn't generally recorded for individuals. In Rigolet, for example, one family used the equivalent of \$7,000 worth of meat from seals alone.

Wayne Piercy said that recently he had been contacted about a vessel that had torn up a string of 10

turbot nets. Petro-Canada hadn't had a vessel in the area, but after some checking found that another company had a seismic vessel in the area. This company and the individual are looking at the possibility of replacing the nets, and compensating for lost catches. C. Flynn said that this was good news.

John Miller asked what were people's views of Petro-Canada's activities. George Ashini felt that community liaison is up to the company, especially because they have greater resources. Hollis Yetman said he was undecided. More information is needed to help people understand the issues. If development associations and communities had more education in offshore operations before this meeting, there might have been more questions.

Wayne Piercy said these meetings are one way of providing information and education. The Petro-Canada newsletters (sent out to every household) contain the most important information on studies and programs. These, together with trips to each of the communities once every two or three months should provide enough information and generate interest. He noted that the newsletters are now translated into Naskaupi, and asked if these would be useful to the people in the communities. George Ashini said that a one-page newsletter doesn't have much information. Wayne Piercy replied that initially it was important not to overload people. If successful, the size and scope of the newsletter may increase. Hollis Yetman said that the newsletter along with community meetings would be good. Mary Mackey felt it important that there be something for the delegates to bring back to the communities that could be used to help relay information from the seminar or from trips to the rigs.

Wayne Piercy acknowledged that it will take a lot of time and effort to improve the level of information provided to the communities.

Session 3

Mary Mackey began by asking Gary Leitch about the Labour Availability Study now underway. He replied that the study included a sample of 500 households (400 along the coast; 100 in the Goose Bay area) from each of the communities.

Clarus Flynn asked about the effects of an oil spill on whelping seals. Don Karasiuk replied that, if a blowout occurred and continued on through the winter, the

oil would become trapped in the ice. In spring, as the ice melted, the oil might pool on top of the ice and at the edge of the ice and water. If this happened and the whitecoats were oiled, mortality of the pups could be expected because they have little fat to insulate them. It is more likely that the mothers would live, because they have a thick layer of fat. Some pups might die if oil was transferred to them from the nursing mothers. At present, it is not possible to estimate the proportion of seals that might die.

Clarus Flynn talked about an incident about ten years ago when beaters (seals between whitecoat and adult stage) were found with crude oil on them. They seemed smaller than usual. He felt they had probably come from the Gulf, and could have been oiled by tanker pollution. This type of incident wasn't strange at the time, however, with better controls in the last few years, there hasn't been as much damage by oil to seals and birds.

Mary Mackey asked how long it would take an area affected by an oil spill to again become a good site for birds and marine mammals. Don Karasiuk said that some bird species like eider ducks regenerate quickly from a disaster, compared to species such as turres, because eider ducks breed young (second year) and lay a large number of eggs (6-7 eggs per batch). Turres only begin breeding in their fourth or fifth year, and lay only one egg. If this is lost, the chances are they won't lay another one in that year.

For very small organisms, such as plankton, which are widely dispersed in the ocean, the effects of an oil spill wouldn't be detectable. On the other hand, it might take decades for seabirds to come back to their original numbers. This has been documented in the spills from the oil tankers Torrey Canyon (Britain) and Amoco Cadiz (France), which both affected a colony of puffins. In the last ten years, the populations haven't returned to normal carrying capacity. In general, the species that would take the longest to recover from an oil spill would be seabirds like murres, puffins and razorbills and perhaps seals.

Hollis Yetman asked how long oil would persist on beaches. He was concerned that even after cleanup, some oil might remain that would contaminate the food of birds and animals, either killing them or driving them away. Don Karasiuk answered that oil persists for varying lengths of time in different environments. In marshes,

where oil is washed in with the sediments and becomes buried, it may take a decade for plants to re-establish and for the area to return to the original productivity. On sand beaches, the oil penetrates a few inches. If there is no vegetation, the sand can be picked up mechanically, fired to burn off the oil, and the clean sand spread back on the beach.

On coarse beaches (shingles, pebbles) the oil percolates to as much as a metre below the surface. This oil becomes a source of chronic pollution because each tide brings some of the oil to the surface, and the oil becomes broken down by the waves into small droplets and carried away. On a rock shore, tarry oil could be scraped off by hand.

In response to a question from Mary Mackey, Joe Buckley said that the 58% of the Labrador coastline which is rocky, with no intertidal flats or beaches, would clean itself in a few weeks or months. In these areas, it would not be apparent a year later that oil had been there. The hardest areas to clean would be the 30% of the coastline that are beaches (predominantly in the Central Region). Don Karasiuk said that oil tends to move off rocks onto the more sheltered beaches and into sediments. The coastal areas most sensitive to oil are beaches with "goose grass", which is important forage for brants and Canada geese. Oil can't be cleaned up mechanically because this would kill the grass.

The limiting time for ducks to come back would be five to ten years in nearshore areas. This reflects the time it would take their food supply (e.g mussels) to recover. In deep waters, oil concentrations would not be as great, and the recovery time less. Ducks, eiders and old squaws are more versatile than geese, which habitually use one area.

Clarus Flynn asked what happens to an oil slick when it is broken up. Don Karasiuk said that oil is broken up into small droplets. These droplets are mixed in the water column where they are broken down by light, bacteria, and yeasts. The oil fractions might be taken up by plankton and might also accumulate in the tissues of those organisms that feed on plankton. Eventually the oil would be broken down into carbon dioxide and water. Joe Buckley explained that a slick might be expected to reform if there was a calm after a few hours of wave action. Otherwise, the oil would be broken down and mixed by the waves into the water and dispersed.

Mary Mackey emphasized that impacts of oil on seabirds and marine mammals could be significant for households which rely heavily on these as food sources. She asked if any work had been done to indicate the quality of meat from seals exposed to oil. Don Karasiuk didn't know of any. He mentioned that seals are difficult to study, because their migrations take them along the coast from the Straits (spring/late fall) to West Greenland (mid-June/July). For part of summer their whereabouts are not known.

Mary Mackey asked why the resource Atlas should be kept updated. Gary Leitch said that the Atlas is the only information that Petro-Canada has about the type and location of activities along the coast, and is the only way in which Petro-Canada knows what to protect from a resident's point-of-view. He asked that the Atlas be looked at by residents, and corrected or changed where necessary.

Mary Mackey referred to the questions from earlier sessions about compensation for lost access to hunting areas and the possible effects of the long-term losses of such resources. She asked what the possible avenues for compensation might be. Gary Leitch replied that the problem was one of accounting rather than with establishing a policy for compensation. The reason Petro-Canada proposed last year that a harvest survey be undertaken in Labrador was that industry needed to know what and how much of the natural resources were being consumed. In the absence of harvest data, Petro-Canada would probably give a lump sum of money to the affected community and let the council distribute it according to people's reliance on these food sources.

Don Karasiuk emphasized the importance of setting priorities within the communities for resources that would need protection if threatened by an oil spill. This would allow for the most appropriate distribution of trained manpower and equipment. He suggested that this information be given to Wish Robson. Gary Leitch acknowledged that the assessment of marine resources, and therefore of damage to them, is difficult because these resources move and their patterns of movements are not well known.

Gary Leitch said that Petro-Canada is now studying compensation schemes in nine countries and, based on this, hope to design a compensation plan that would be suitable to the local area. He cited an example from Scotland,

where there is a three-man panel (fishermen's union, oil company and government representatives) that deals exclusively with compensation for damaged gear. In the past ten years this panel has dealt with some 1,200 claims. The panel investigates each claim for fraud, but to date only six cases have been found fraudulent. Very few appeals have been made (an appeal process is included in the compensation scheme) indicating a general satisfaction with the settlements.

Don Karasiuk asked if the day-to-day offshore drilling operations over the last ten years in Labrador have changed people's patterns of activity or those of the wildlife resources off Labrador. Hollis Yetman replied that he hadn't seen such changes. In fact, some people in Red Bay didn't know that there were rigs offshore. Oil development is usually never talked about in Red Bay. Wilfred Lane said there had been no effects in Postville.

Hollis Yetman said that one potential change that hadn't been talked about was costs. Mary Mackey discussed some of the pressures experienced in St. John's and other communities as a result of a surge of activity about two years ago. These included: housing (doubling of house prices, pressure to sell, vacate apartments so rents could be increased); population influxes to surrounding communities (the need to integrate newcomers with local residents; need for council bylaws to control development); concerns about the difference between wages of rig workers and other jobs; and pressure to take masters from fishing boats to work on the rigs. There was speculation in communities that were rumoured to be possible sites of onshore supply bases. Hollis Yetman said he would expect that any of these effects would be more apparent in Goose Bay than along the coast.

Don Karasiuk concluded that from the reactions stated, at the present level of operation, there haven't been many environmental effects. Hollis Yetman replied that, to respond properly to Don's question, he would have to ask the communities in his area for their specific reaction as he could not speak for them without consulting them.

Don Karasiuk asked what arrangements were being made for further communication with the communities. Gary Leitch suggested that Wayne Piercley could meet with the representatives in their communities in the near future. Don Karasiuk asked that notes be taken at community meetings about concerns related to offshore activity, and

that these be sent to Petro-Canada. Hollis Yetman said that these things could probably be done fairly easily with the development association, but that people would be needed to take information into the individual communities.

3.2 Workshop Group B

Chairperson

Judith Rowell

Labrador Inuit Association,
Dartmouth, Nova Scotia

Rapporteur

Peggy Lough

LEM Ltd.

Participants

Olive Blake
Garfield Flowers

Town of Northwest River
Community Council, Hopedale
(Session 2)

William Flowers

Torngat Fish Producers Co-op,
Goose Bay

David Hunt

Labrador North Chamber of
Commerce (Session 3)

Tom Martin
Clara Michelin
Loretta Michelin
Sydney Pardy

Town of Happy Valley-Goose Bay
Goose Bay

Edison Ryan
Earl Stone

Northwest River (Session 2)
Eagle River Development

Fran Williams

Association, Paradise River
Red Bay Co-operative, Red Bay
East Shore Labrador Development
Association, Charlottetown
Labrador Inuit Association, Nain

Resource Persons

Duncan Hardie

Canada Oil and Gas Lands
Administration, Ottawa
(Part-time)

Ray Hawco

Petroleum Directorate, St. John's
(Part-time)

Bruce Johnson

Canadian Wildlife Service,
Sackville, Nova Scotia
(Part-time)

Tony Williamson

Labrador Institute for Northern
Studies, Goose Bay

Petro-Canada Resource Persons

Session 1:

Joseph Buckley
Gary Leitch
Donald Karasiuk

Session 2: Bruce Berry
 John Hunt
 Wishart Robson

Session 3: John Miller
 Wayne Piercley
 Wayne Speller

Session 1

Fran Williams asked whether, if the Arctic Pilot Project went ahead, and a transportation corridor opened the Labrador Sea, it would be possible to drill year-round. Gary Leitch replied that this would not make year-round drilling possible. The presence of icebergs and moving pack ice require the use of mobile drill rigs which can move off when ice threatens. The force of fast moving pack ice in the winter makes it impossible for such rigs to stay on station.

Fran Williams then asked if the project in Labrador was at the production stage, would an island be built as a platform. Joe Buckley pointed out that it is still premature to say what production technology would be used in Labrador. It's possible to build an island, but it may not be economical or practical. Water depth in Labrador is 150-300 m, compared to 15 m in the Beaufort Sea. One would have to move a mountain to get enough rock for an island. Section 4 of the IEA does not choose between the methods for production, but gives a time frame of 11-30 years, depending on the engineering technology selected.

Ray Hawco wondered if semi-submersibles were used in the Labrador Sea, how long the drilling season might be extended. Joe Buckley replied that it might be extended by up to 2 1/2 months, but pointed out that anchoring is not viable in Labrador, and at present there is only one dynamically positioned semi-submersible rig (Sedco 709) in the world. Another one is being built (Sedco 710) that will be delivered next summer. If drilling continues in Labrador, it might be used there.

Clara Michelin asked whether there had been a problem off Labrador with earthquakes, and could this displace an abandoned well. Joe Buckley pointed out that it is very unlikely that an earthquake would ever happen off the Labrador Shelf, because the base rock is Canadian Shield. Other possible hazards like iceberg scour are under active research by C-CORE. It is known that scour exists, but not the frequency, as there is no method for dating. Geotechnical hazards would be looked at much more seriously in a production environmental statement than in this document (the IEA), whose frame of reference was for exploration.

Bill Flowers noted that this year one vessel was drilling only 16 km off land at Saglek, and he wondered if

any surveys have been done on land. Joe Buckley pointed out that there is no oil under land in Labrador, because the base rock is granite, which was formed before there was life on earth, and therefore cannot contain oil or gas. The only reason drilling is occurring so close to land is that there is no marginal trough inside Saglek Bank.

Fran Williams asked about the noise from drilling operations and whether it could affect marine life. Gary Leitch replied that the noise would be no greater than from a similar sized ship, e.g. CN coastal ferry, although the drill ship stays in the same location for three months.

Duncan Hardie reported that observations from the Pac Norse drilling on the Rut well, 16 km offshore, showed an unusually high concentration of cod, and the presence of the vessel didn't seem to affect seabird or whale migration patterns. Bevin LeDrew pointed out that fish exhibit a fright reaction to a sudden noise, but will get used to a steady noise.

Don Karasiuk addressed the concern about drilling mud disposal in sheltered estuaries. Studies in Cook Inlet, Alaska have been done, by caging Pacific salmon. The fish were healthy during the period of the study. In a localized area of about one acre, bottom organisms were buried. In New Jersey, U.S.A., a study found that the cover provided by mud resulted in the presence of a higher density of fish. The impact of noise on marine mammals is not well documented.

Duncan Hardie referred to studies of the effects of North Sea drilling platforms which have been ongoing since drilling began. These studies concluded that the impact was minimal or negligible on birds and mammals. The impact of rig discharges on the pelagic community is difficult to evaluate. The uptake of heavy metals by organisms is very low and unlikely to alter the community state.

Fran Williams requested information on volumes of oil supplies kept in the base camp at Saglek. She noted that one Nain fisherman had to move his nets off Saglek, because oil seeped from the shore when the water rose.

Gary Leitch responded that some years ago (1974 to 1977) a Ministry of Transport tanker failed to close the valve after pumping diesel fuel to the tank on the hill there. The Department of the Environment was requested

for their statement on the damage, but they've refused to give the report to Petro-Canada. At the Saglek site, Petro-Canada has only diesel for the power plant and helicopter fuel.

Tony Williamson noted that the previous day's discussion of the kinds of ice omitted discussion of the transition zone between the landfast ice and the moving pack, called sina by the Inuit. It was of paramount importance (biologically) to the prehistoric Inuit, and continues to be, because of the concentration of marine life which occurs in this zone. He felt that attention should be given to the Nain Archipelago, an area of great hunting importance that should be recognized in contingency planning.

Don Karasiuk referred to a collection of Canadian Wildlife Service papers edited by Ian Sterling (Monograph No. 15) on the importance of the polynya (an area of semi-permanent open water). He acknowledged that the shore lead hasn't been addressed in the IEA, and agreed that perhaps it should have been.

Fran Williams asked about the likelihood of an oil spill coming ashore. Joe Buckley pointed out that the slick trajectory in the IEA shows that oil could come ashore in less than a day with strong northeasterly winds in the ice free season, however, it is highly unlikely to get those wind directions any more than one to two days per year.

Don Karasiuk asked for comments on the information which community people think is necessary for biological or social studies. Judy Rowell replied that people from the north coast have definite feelings, which are included in the LIA brief.

Bill Flowers enquired whether any detailed studies have been done on the impact an oil spill would have on the Hamilton Banks, the main spawning ground of the Atlantic cod. Joe Buckley responded that Petro-Canada conducted an oceanographic program which showed the flow patterns around the Hamilton Banks and the Cartwright saddle in the summer of 1980, and the preliminary results are in the IEA. Water has little tendency to flow up on the banks, consequently, in the absence of a strong wind, a slick will go around the edges of the banks. However, he pointed out that one can't ignore the wind as it's a stronger but less constant force than current in driving a slick.

Duncan Hardie pointed out that results from OLABS studies showed that the distribution of phytoplankton, zooplankton, and ichthyoplankton (fish eggs) on the Labrador Shelf is extremely variable both in time and space. It's very difficult to get a handle on seasonal distributions of these organisms in an open ocean environment. It is known that eggs and larvae are the most vulnerable life stages. It would take years of study on the Labrador coast to get a full appreciation of phenomena, and the OLABS work gave only one small piece of the picture. The effect of an oil spill on cod stocks in the open ocean is not known, however, we would be guessing even with 20 years of data.

Don Karasiuk added that the proportionate depth of cod eggs over the Hamilton Banks is not known. Cod spawn during the period of ice cover, and in the two months between the spawn and the larval stage they can travel a long distance with the current.

Judy Rowell asked Bill Flowers whether the Torngat Fish Co-operative has any approach or priority to research. He replied that if offshore oil develops, the fishing industry is anxious about its ability to compete for workers. People are free to work where they wish, but the fishing industry will be in the region longer than the oil industry. The Co-operative wants to keep people involved, and hopes they don't lose sight of the traditional industry. There is a big need for training people for the offshore shrimp vessels, whose technology is foreign to Labradorians. The same goes for training for the oil industry. A comprehensive plan should be put together by people involved in training.

Ray Hawco suggested that it may be wise for the fishing industry to conduct an assessment of needs for training in the fishery. Gary Leitch pointed out that one of the major recommendations of a study done by NORDCO Ltd. was that revenue from the petroleum industry should be used for training in the fishery.

Tony Williamson pointed out that a subcommittee of the Coastal Labrador DREE Agreement (including representatives from the Institute, the District Vocational School, and Adult Education) is now conducting a training needs assessment. Ray Hawco stated that, while education and training is a provincial responsibility, it is also a local responsibility. Local organizations need to establish a mechanism which links them with the source of funds and with those who make decisions on training.

Gary Leitch referred to the East Coast Petroleum Operators Association (EPOA) and its system subcommittees, which includes a fisheries subcommittee that has done research related to the fishery and its relationship to the petroleum industry. This Committee is well used by the Nova Scotia fishermen, but no one from Newfoundland has approached it. Leslie Gratton of Mobil Oil Canada Ltd. is chairperson, and the Committee has a budget for projects.

Judy Rowell observed that it's hard for Labrador groups to know what does exist because these organizations change frequently. She felt there should be an effort to pull together all possible avenues and agencies that could provide a support and financing function as well as liaison to local organizations. Clara Michelin pointed out that last year the LRAC had met Ray Hawco and found out about his responsibilities, but he had never come to Labrador, so that there was little awareness of him as a resource available from within the Province.

Duncan Hardie expressed a caution that the oil industry should not be expected to pay for or get involved in management of fishery research because that is a government responsibility.

Tom Martin concurred, stating that the government should look after the fishery. He agreed with the oil industry that others should be involved in research. For example a West Coast organization CAFAW (Canadian Association of Fishery and Allied Workers) employs biologists to do their own research, because they feel that government is not meeting their needs. The fishing industry and the transportation industry should share with the petroleum industry in doing research. The risk of an oil spill from the transportation industry is greater than that from a blowout. Co-operative research could serve a number of interests.

Session 2

Tom Martin asked about the location of oil spill cleanup equipment. Wish Robson replied that, with the exception of some dispersants, all Petro-Canada's equipment is stored in St. John's. He added that all east coast petroleum companies co-operate in the ESRA (East Coast Spill Response Association) organization in St. John's, which has on full-time staff one manager and four operators, to maintain and test the equipment, and to be on call for an emergency. This base services the Grand

Banks and the Scotian Shelf. Petro-Canada also co-operates with the Coast Guard in St. John's in training and equipment maintenance.

In response to a question from Clara Michelin, Wish Robson outlined the available methods for controlling an oil spill in the Labrador Sea. The preferred course of action is containment and recovery using booms, skimmers and storage capacity. Also available are dispersants. Another alternative is burning, although these latter two are not primary choices. A new product is a gel, which combines with the oil to form a rubbery mat that is easy to pick up. The course of action depends on the nature of the oil spilled, the volume, and environmental conditions.

Ray Hawco pointed out his understanding that in oil spill countermeasures, the main hope is that natural elements will disperse the slick. He asked whether this was the case in coastal Labrador.

Wish Robson agreed that environmental conditions do affect oil slicks. It's possible to lose up to 40% in the first 48 hours due to evaporation. It all depends on the physical state of the oil coming to the surface. In some cases, a vigorous sea state is helpful in dispersing the oil, even though it hampers other operations. Even with the best equipment, and countermeasures, if the winds are onshore, some oil will come ashore and preventative action will be necessary to prevent damage of sensitive areas.

Fran Williams was interested in the speed of response to a spill event. Wish Robson explained that if it is necessary to mobilize large equipment (skimmers, booms), it would be about 24 hours before the first pieces of equipment and manpower could be moved to location by aircraft. By ship, it would take 8 hours to load the vessel, and 3 days steaming time. If a supply vessel were in the area, some equipment could be transported by aircraft, but that requires the proper equipment at the airport and the dock. The largest piece of equipment is 6-7 tonnes, and requires cranes and heavy duty trucks.

There was a general discussion of compensation that raised issues as described for Workshop Group A.

With reference to development of compensation policy, Fran Williams felt it should be done in conjunction with the people who are going to be impacted and those who are going to do the damage.

Wish Robson pointed out that, in addition to industry, there are other marine compensation funds that could be utilized. Through the Coast Guard, the Maritime Pollution Claims Fund, administered by a branch of the Department of Transportation, settles claims for mystery spills, caused by an unknown source, or by an out of the country company. As noted by Judy Rowell, however, (as of 1978) that scheme has paid out a little more than \$650 out of a \$50 million fund.

Judy Rowell summarized the discussion on compensation by stating that there is a need for the people, government, and Petro-Canada to meet soon to discuss guidelines for compensation for loss of gear, time, and a food source.

Sydney Pardy asked what employment Petro-Canada can offer to people in small communities. John Hunt reviewed the effort made by Petro-Canada to get to the Labrador coast to hire. Wayne Piercy and a representative from Harvey's Offshore Services interviewed people from the Straits to Nain. This year (1982) Petro-Canada had 18 Labrador residents working on the drilling ships. That effort will increase while the company continues to work in this area. Bruce Berry added that, at the Petro-Canada land bases in Cartwright, Hopedale, and Saglek, people are hired from the local area.

Garfield Flowers asked whether Petro-Canada has a plan for training local employees. John Hunt said yes, that this will be done during the off-season, with the training done in Calgary.

Clara Michelin asked about opportunities for women. Bruce Berry replied that to date the people who have been working offshore on the rigs have all been men.

Ray Hawco pointed out that, over the past year and a half, the Human Rights Commission has dealt with this issue, and both Mobil and Petro-Canada have promised in writing to provide equal opportunity for women.

Fran Williams felt that on the land bases, the first option for jobs should be for the local people. At Hopedale, she reported, the cook was brought in from Calgary, even though there was a local person who had completed the cooking course.

Bruce Berry agreed this should be looked into. Petro-Canada contracts catering to a firm and, hence, they

do not hire directly. The contracts specify local labour, which to Petro-Canada means anyone in Labrador. From the discussion Mr. Berry assumed people felt Petro-Canada should be more specific, i.e., someone from Hopedale should work in Hopedale.

Olive Blake noted that she was present to listen and learn, and felt she was learning a lot. This is the first time Northwest River has been involved in something like this. Her community is usually left out of such meetings as it is not on the coast, nor is it a designated (native) community. She asked how people from her community could get involved in employment and training. While she couldn't be specific about the interests of people in her community because there have been no meetings or any liaison, she knew that people there are desperate for jobs.

John Hunt pointed out that if people are interested in jobs, they should be registered at Manpower in Happy Valley. When Petro-Canada has openings, it goes through that list, and also advertises over the radio. He felt that Petro-Canada might need to make a specific effort to go to Northwest River.

Clara Michelin observed that most communities do not understand things like this large document (the IEA), and yet they're asked to respond. Without education in the communities, one can only rely on the LIA or others who are paid to work on studying these things. She felt it was up to Petro-Canada's community liaison people to make the local contacts and provide information on the IEA. Judy Rowell asked whether the IEA Summary had made the task any easier. Tom Martin pointed out that he and the other eight members of the Happy Valley-Goose Bay Town Council all work on a voluntary basis. This requires a lot of their time and the summary was useful to them. He also stated that his Council has never had a problem meeting with Petro-Canada and they welcome them.

Tony Williamson observed that there is a question about the amount of paper pushed at small communities, whose residents have to spend 99 percent of their time surviving. They are expected to understand complicated documents, whose originators have prepared for them by trained professionals. He questioned whether this seminar was the best forum to get community response to this document. If a small contingent went to each community to explain the contents in broad scope, not heavy scientific detail, Petro-Canada might get more feedback. Mr. Williamson felt that by this forum, the company will get some feedback, but the communities will not benefit very much.

John Hunt noted that, as a preliminary to this meeting, Wayne Piercy and Bevin LeDrew travelled on the coast. He conceded that maybe a larger contingent should have gone. He also expressed a hope that one of the potential benefits of the seminar would be to provide an opportunity to get communities together. Tony Williamson replied that his statement was meant as a comment rather than a criticism, and that no one has decided on the best way to disseminate such information.

Session 3

Wayne Piercy started off the discussion by providing a list of the types of services required by offshore companies. He had made up the list on a request from Bart Jack. Of the twenty services needed by Petro-Canada last year, Labradorians were involved in about twelve. The service requirements of Petro-Canada are:

1. Supply vessels: large capital outlay, but even so one Labrador group is negotiating to obtain a vessel;
2. Aircraft: all aircraft services were contracted through Labrador companies (pilots, ground crews);
3. Shore-based labour contracts: cooks, janitors, heavy equipment operators. 34 Labrador residents were involved last year;
4. Communications contractors: done by a St. John's company who hired Labrador labour;
5. Electric logging and mud logging: high technology contracts handled by international companies;
6. Ice observation: St. John's companies; it is not known whether they hired local labour;
7. Diving;
8. Ground handling (crew changes, baggage, freight), for drill ships and aircraft;
9. Bulk cement, bulk mud products (could involve Labrador labour);

10. Fuel contractors;
11. Seismic contractors; and
12. Meals and accommodations.

Ray Hawco observed that the jobs that are immediately available are at the lower end of the technology scale. Looking ahead 2-4 years, there is a need to make changes at the secondary school level, so that local young people can get the training for the higher paying jobs.

Wayne Piercy agreed and pointed out that he had outlined the position presently held by Labrador residents. If Labradorians are to participate in anything but the manual jobs, they will need training. Wayne pointed out that he has gone to some of the schools to talk about the industry to students, and this effort will continue this winter. The Education Research Institute at MUN is presently doing a study of the impact of the oil industry on education. It's possible that the Department of Education may look at this report and make changes in the curriculum (e.g. more math and science courses). The company encourages the interest of past employees who wish to advance, e.g. from stewards to roughnecks.

Duncan Hardie pointed out that people should be aware that when a company comes to bid on an acreage, it is required, through the Canada Benefits package, to maximize the Canadian benefits both at the local and the regional level. When asked how much effort had been made by COGLA to make communities and businesses aware of the incentives COGLA requires of operators, Mr. Hardie replied that he was not sure, but would hazard a guess that there is a program underway that will make this information available to local communities. In Nova Scotia, an active part of the COGLA's responsibility is to make the local business community aware of the opportunities in offshore oil and gas. There is an agreement with the Provincial Government in Nova Scotia, so both levels of government are involved and working together. As yet there isn't the same kind of association with the Province of Newfoundland.

Ray Hawco noted that the Provincial Government is the other regulatory agency that is supposed to be involved but the legislation regarding local preference, education and training has not been explained to the communities. The government's present priority is on the Hibernia area, however, he felt that if demands are made of COGLA or the Petroleum Directorate, these organizations would respond.

Mr. Dave Hunt noted that COGLA had not approached the Labrador North Chamber of Commerce. He felt such an approach would be appreciated and by such a contact information could be passed on to the local business community. Mr. D. Hunt pointed out, in response to a question from Wayne Piercy, that Petro-Canada has gone out of its way to give contracts locally, and that effort is appreciated.

Wayne Piercy noted his intent to list all the businesses and services in coastal Labrador (from Nain to L'Anse Au Clair). By making local contacts he hoped first to educate the business people as to the services required by the industry, and then to educate the industry contractors that these services are available.

Dave Hunt asked whether Petro-Canada has a local preference policy, and Wayne Piercy said yes, that if two tenders are within the same price range, the local one will be preferred.

Fran Williams pointed out that few Inuit are entrepreneurs, so that if Petro-Canada deals only with business people, the Inuit will not benefit.

Dave Hunt then noted that the Chamber would help an Inuit who wants to go into business or enter a joint venture. He noted that, for example, he had helped one individual in Davis Inlet.

Olive Blake asked about the process of selecting people for training. Wayne Piercy described the training program planned for this winter in Alberta. To get names Petro-Canada contacted Harvey's for references from last year's employees who want to further themselves. Also, people have written directly to Wayne or contacted him personally. For new people, Petro-Canada would want them to be interviewed by Harvey's to make sure they would get employment after their training.

Bill Flowers raised the issue of the information on the fishery contained in the IEA. He felt the same as Larry Jackson who mentioned yesterday the fishery information in the document. The information in the document was based on '79 figures. The most dramatic increase in the fishery has been since then. Bill felt it would not be difficult to update the information. For example, he noted that he recently contacted Federal Fisheries, and got figures for cod landings from Cape Charles north in Labrador for '80, '81, and '82. These

figures show a market price of \$10 million for cod alone (which does not include salmon or char or any other species, and does not include cod landings on the Straits). A conservative estimate of fish production on the Labrador coast is \$13 - \$14 million. It's not just Labrador fishermen that harvest these resources. For the past three years, about 140 longliners have come from Newfoundland to Labrador each season to take part in the northern cod fishery. There are 1455 licensed fishermen in Labrador from Cape Charles north in Labrador. Given this, the information in the IEA is inadequate. Perhaps it gives good historical facts, but the figures change every year. The fishery is a valuable resource along the Labrador coast. Bill pointed out that \$14-15 million may not sound like much to Petro-Canada, but it means a lot to the people who live on the coast.

Wayne Speller noted that, as Bill had stated, the fishery is in a state of flux, and the numbers are changing dramatically. He stated that Petro-Canada had made no attempt to diminish the importance of the fishery, and, in fact, recognizes its value.

Clara Michelin expressed the opinion that the IEA didn't cover the socio-economic displacement factor in the community. She felt that, while it's up to the people of Labrador to move or do as they wish, someone should examine this possible impact.

Judy Rowell enquired as to what would happen if an issue is identified as a concern by Labrador people, i.e as something to be assessed and monitored, but Petro-Canada doesn't see it as a priority. Wayne Speller replied that, if the Federal or Provincial Government feels it is important, then the company would do it.

Tony Williamson requested clarification of the purpose of this meeting. He understood that the delegates were to review the large document, but that it would not result in changes to it. Why then do it, he wondered. Wayne Speller said that the proceedings of the workshops, plenary session, and response comments will all be incorporated into a document that will be distributed along with the report of the scientific review to everyone who received a copy of the IEA. This, he felt would be a responsible approach to updating the document without re-writing it.

Judy Rowell summarized the needs identified by the workshop group to include:

- oil spill and the effects on shore
- open up contingency planning to public consultation
- clarify the compensation process (how to make claims, how would they deal with loss of a food source)
- more effort to circulate employment and business opportunities
- research ice leads and polynyas: biological use and resource harvesting
- more research on the value of the fishery
- more local consultation
- training needs

3.3 Workshop Group C

Chairperson

Lawrence Jackson

Labrador Institute for Northern
Studies, Goose Bay

Rapporteur

Katrina Hodgson

LEM Ltd.

Participants

Tony Andersen
Kevin Columbus

Community Council, Makkovik
Labrador Inuit Association,
Dartmouth, Nova Scotia

Frank Flynn

Labrador South Union Shrimp Co.,
Forteau

Gilbert Fowler

Capstan Island Fishermens
Committee, Capstan Island
Eagle River Development

Diane Martin

Committee, Captain Israel
Eagle River Development
Association, Cartwright

Clyde Saunders
Doug Saunders

Labrador Friendship Centre, Happy Valley

Resource Persons

Bruce Boles

Labrador Institute for Northern
Studies. Goose Bay

Larry Coady

**Department of Fisheries and
Oceans, St. John's**

John Curran

Petroleum Directorate, St. John's

Petro-Canada Resource Persons

Session 1:

John Miller
Wayne Piercley
Wayne Speller

Session 2

Joseph Buckley
Donald Karasiuk
Gary Leitch

Session 3

Bruce Berry
John Hunt
Wishart Robson

Session 1

The Fisheries section of the IEA was discussed. Several participants emphasized that the inshore fishery is essential to the residents of coastal Labrador, as is the protection of this resource. Most of this catch is still salted, although there are differences from north to south.

Larry Coady pointed out that the importance of the medium-distance fleet to the province's fishery as a whole is increasing but that few such vessels are resident to Labrador. The Provincial Government is trying to diversify the fishery in the Labrador area, a program which also includes development of the shrimp fishery.

The continuation of biological studies (cod larvae, harp and hooded seals, etc.) is important because of seasonal and yearly variations, and changes over small geographical areas that exist. The ability to detect these changes is important in deciding, for example, if and when compensation should be awarded for loss of catches. Frank Flynn pointed out that there may, in fact, be a four or five year period before it is realized that damage has been done.

Wayne Speller pointed out that a detailed study of cod larvae, which had been proposed as part of the OLABS program has been postponed. He suggested that unless there was a cost-sharing arrangement in place, Petro-Canada would require both a major oil discovery and an approved development plan before it would assume the cost of such a study program (\$1 million). Frank Flynn suggested that because cod larvae are essential to the survival of the fishery, more research needs to be done. This should be the shared responsibility of the Federal Government and the oil industry. Larry Coady suggested a three-way split of costs to include the fishery industry.

Larry Coady said that before such a study could begin, the distribution of cod larvae would need to be better understood, and that this would be furthered by the results of a physical oceanographic study on ocean currents which is now underway. At this time there is a poor understanding of the factors in the environment that contribute to the mortality of different age classes of cod. This makes the determination of compensation very difficult. However, a massive oil spill is not expected to have a great impact on fish, because: (1) the dispersion of eggs is even greater than the spread of oil

from a spill; and (2) there is so much natural variation from year to year that it is hard to pick out the impact of an oil spill from this variation.

Kevin Columbus stated that the LIA disagrees with Petro-Canada's comments in the technical review report that an assessment of indicator species of fish (those species that could be used to detect changes in the marine environment associated with the effects of oil) would be "nice to know", but that there is not a need to know why or how they get there. Given other projects, such as the Arctic Pilot Project (for the shipment of liquified natural gas in super icebreaker tankers from the Arctic to Southern Canada and the United States) there is a requirement to know where fish are and why.

Wayne Speller replied that Petro-Canada appreciates this. Where there are multiple uses of an area, there is a requirement for these studies to be undertaken jointly. At this time no other industry has a supporting program as extensive as Petro-Canada's.

Seabirds

In response to Larry Jackson's question if there were gaps in the IEA, F. Flynn suggested that there is a need to protect the feeding ranges (10-20 miles) around seabird nesting colonies.

Seabirds are the only indicator species in the marine environment which provide a measure of change which can be used to estimate the impact of an oil spill. For this reason the seabird study was undertaken. The Canadian Wildlife Service paid for these studies for the last two or three years. (Wayne Speller)

Doug Saunders and Larry Coady pointed out that other needs for biological studies include further year-round studies on harp seals, hooded seals, ringed seals and whales. A knowledge of the distribution and feeding patterns of ring seals is important especially to the northern communities of Labrador. Wayne Speller said that all the seal reports done through the OLABS program have been published. Data from Makkovik and Postville indicate that, in this particular area, ringed seal diet changed with the age of the seal, and the season of the year.

The group agreed that a mechanism was needed to establish priorities for biological studies.

Gilbert Fowler, Frank Flynn and Lawrence Jackson observed that the effects of oil on seals and seal meat needs to be further investigated. A number of oiled seals have been reported on the Labrador coast in recent years. For example, last spring oiled seals were found and those that were killed late in the season had hardly any fat, and were not eaten. Another incident (1976/77) involved thousands of seals being oiled just after whelping. Many of those seals that later shed their white coats survived; others that had already shed before getting oiled probably died.

Physical Studies

Seasonal variation in tides and currents, especially in the Strait of Belle Isle, needs to be better known. John Miller indicated that Atmospheric Environment Services (AES) (meteorology and ice) and the Bedford Institute of Oceanography have expressed interest in cooperating with industry in further research.

Oil Slicks

Kevin Columbus said that it might be useful to expand contingency planning and oil slick trajectories to take into account predominant circular current motion (on the banks) and heavy oil (present models assumed light oil). In response to a question from Bruce Boles, Wayne Speller said that the kind of oil that might be found is a geologist's best guess.

Communication

The distribution of reports on environmental studies related to the IEA (e.g. OLABS reports) was acknowledged by Wayne Speller to be a major problem. Petro-Canada is responsible for providing copies to its partners. COGLA (Duncan Hardie) has taken on the job of distributing them to the public.

Making the IEA and supporting studies understandable to the public is important, and Gary Leitch is now requesting that such be done. (Wayne Speller) Kevin Columbus supported such a program, and referred Petro-Canada to the LIA submission. Wayne Piercley agreed that because of the technical material involved, present documents are of limited benefit to most people. The writing of a Summary, and the recently held consultations with community representatives were undertaken in an effort to improve the situation.

Effects of Oil

Frank Flynn expressed a general concern that any disaster that occurred as a result of oil exploration would hurt everyone, both in terms of jobs as well as the further development of the fishery.

Because of the lack of knowledge, it was observed that there is a tendency to blame oil for unusual incidents that have happened in the past, for example, the occurrence of hairless seals which, in fact, was caused by a disease.

Larry Coady pointed out that incidents specifically related to oil are referred to the Coast Guard and the Environmental Protection Service. Careful examinations are undertaken to determine the causes.

Compensation

At present it is exceedingly difficult to determine either the extent of an oil-related disaster, or the consequent compensation that should be awarded. Gilbert Fowler stated that if the fishery was stopped, the effects would be wide. Frank Flynn questioned how one would know what was affected by a spill if studies such as the cancelled cod larvae survey were not done. Wayne Speller did not deny a responsibility, but asked that people look at the present high volume of ship traffic in the Strait of Belle Isle and the resulting oil pollution compared to that caused by present exploratory drilling operations.

There was general agreement with Frank Flynn's remarks that the fishery is caught in the middle and is affected by the government-permitted foreign fishery effort, transportation, and the oil industry.

Jobs

Diane Martin said that in the Cartwright area about eight people had been employed with Petro-Canada. Even though the fishery is in bad shape, people are reluctant to give it up.

Socio-economic

An influx of people to the Labrador coast was identified as a major impact if the level of exploratory drilling increased (B. Boles). Wayne Speller noted that Petro-Canada hadn't really considered this to be the case,

reasoning that most activity would be concentrated at the supply base in St. John's. There might be an influx of people into Goose Bay, rather than on the coast, but year-round transport through Lake Melville would first be necessary for Goose Bay to become an important supply base.

When asked about plans for future drilling, Wayne Speller pointed out that the level of activity for next season is difficult to forecast. High costs of exploration in northern regions, partnership concerns and external variables must be considered. Exploration, particularly in Nova Scotia and on the Grand Banks is more attractive.

John Curran provided general comments on the IEA. He felt there is an advantage to starting with such an exercise at the exploration phase even though there are limits to the technical data that can be gathered. The emphasis on technical matters does, however, make the document difficult to comprehend. Given its importance, heavy emphasis should be given to the fishery. With reference to the concern that privacy be respected in gathering socio-economic information, Mr. Curran felt this concern had been over-emphasized.

John Curran continued, stating his opinion that the series of informal public meetings being held by Petro-Canada are good. People have more input than before, but this can still be improved.

Frank Flynn felt that impacts of oil development in Labrador would not be the same as for those from Hibernia. Further south (Hibernia) there would be a fair chance of recovery from a spill. J. Curran explained that the socio-economic impact assessment for Hibernia is concentrated on the Southern Avalon Peninsula. This is where the fishery would be affected if there was an oil spill, and this is the area of potential onshore developments. Hibernia is a known discovery, whereas offshore Labrador is a series of exploratory wells with no discoveries. Hibernia will provide lessons, some of which can be applied to the Labrador offshore.

Wayne Piercley asked what Mobil Oil is doing in terms of a community consultation process. John Curran replied that Mobil Oil was given guidelines for development plans. Ray Hawco was involved with community consultations on the Avalon and also on the West Coast. Mobil's community consultation process concentrated on the Avalon, the area closest to the discovery.

Session 2

Joe Buckley defined oil slick trajectories as the path a patch of oil on the surface will take. Given weather predictions, and water currents around the drillsite, and knowing the relationships between winds and the movement of oil, the pattern of oil slick movement can be predicted. The oil slick trajectory model in the IEA uses wind and current patterns that are representative of conditions. These models give a range of possibilities as to where oil will go and how old it will be by the time it reaches an area of impact such as a shoreline.

In response to a question from Clyde Saunders, Don Karasiuk explained what happens to oil on different types of coastlines. Along gravelly shorelines the oil soaks down as much as one metre. It moves more slowly and reaches shallower depths in sand. Oil in gravel is hard to clean up, and each tide washes a little away. Using a grader, oiled sand can be picked up and the oil burned off in a small incinerator, and the clean sand returned to the beach. On rocks, oil would be stranded by one high tide and washed out on the next. If there are no waves, oil accumulates. Heavy wave action breaks up and disperses the oil (making an emulsion like milk). Old oil is like asphalt, and it can be shovelled up and burned if the area is fairly accessible. Otherwise, it is left there, where it will take a while to break down. The worst case of oil effects are in marshes. Oil kills the plants which are important feed for ducks, and penetrates into the sediments. A marsh can take 15-20 years to recover from the effects of an oil spill.

Oil in the open ocean can be broken into small droplets if there are high waves, and it becomes mixed in the water column. Until it is "aged", oil remains toxic. The mixing action dilutes the amount of oil. In calm seas, oil coats the surface, or rises from the water column to the surface. Weathering is quite a complex process, whose rate varies with the grade of oil and the conditions to which it is exposed. Weathering under ice would be different. The oil found at the North Bjarni well is mostly heavy, like shoe polish, while the rest is like a marine diesel which readily evaporates.

There was some discussion of reporting mechanisms for oil spills. Kevin Columbus referred to a slick which was reported off Makkovik by fishermen. There were patches of oil drifting towards the headlands and fishermen took their nets out of the water for a few days. Don Karasiuk

reported concerns expressed by J. Rowell that people didn't know of a good mechanism to report these spills, and once reports had gone into EPS, nothing came back to the people. Bruce Boles agreed with these comments.

Larry Coady said that there is a reporting mechanism in place, not only for oil spills, but also for biological oddities. Someone needs to take the initiative to report. Those occurring in Newfoundland usually get reported but he did not know of any examples for Labrador. When he was with the Environmental Protection Service (EPS), fishermen usually reported things to the local fisheries officer, who contacted EPS. Whoever was available from either EPS or the Department of Fisheries and Oceans (DFO) would be sent to investigate, unless the occurrence was very small.

Frank Flynn asked if temperature affects the evaporation of oil. Don Karasiuk referred to Figure 6.b (page 6-29) of the IEA. He noted that this evaporation curve was based on a heavy crude. Since Labrador oil is expected to be light (similar to or lighter than a summer blend motor oil) there would be more evaporation. There are variations in evaporation for different types of oil. Oil varies within a field, within a well, and within a reservoir over time. It is a mixture of compounds which varies, like soup. Joe Buckley noted that after evaporation there was just as much variation in the residues, whether derived from light or heavy oils.

Gilbert Fowler, referring to page 45 of the Summary, asked Joe Buckley if these trajectories reflected the movements of drift cards. When were the drift cards released and what was in them? The cards were made of plastic laminated cardboard, with a float so they don't ride on the surface like oil. Over a very long time they do come apart, and this may be a possible fate of a lot of the cards. The drift card experiment was not part of the slick modelling but was used to examine current patterns.

Don Karasiuk pointed out that the slick trajectories illustrated in the IEA are, in fact, only a few of hundreds that have been done. These cover the ice-free period from June to November, which is the season of exploratory drilling

Larry Jackson asked if Petro-Canada believed a blowout was a likely event. Don Karasiuk referred to Section 6 of the IEA. Impacts occur in one of two types: (a) what's inevitable as soon as drilling begins, i.e. the

results of routine day-to-day operations; and (b) the unexpected, which could be a catastrophe. The impacts of routine day-to-day work are certain to occur, whereas while its likelihood is quite low, no one knows the probability of an oil blowout. It could be 1 in 10,000 or 1 in 1,000,000.

Larry Jackson asked about the variation in numbers from different sources. Don Karasiuk replied that the odds of a small spill, i.e. 50 barrel/day, are much much greater than a very large, 50,000 barrel/day oil blowout. Although there will be serious consequences from a small spill, they will not be as great as those from a large spill. The risk varies because of human error, differing geological structures, the physical environment (sea state) and other factors which influence probability and consequences.

The best world statistics were provided by Gulf Oil, who looked at some 2500 blowouts in the world between 1955-1980. Essentially they indicate that the risk of a large blowout is less than that of a small blowout, and that the risk of a gas blowout is greater than that of a blowout containing oil. However, offshore Labrador presents the hazards of ice and high seas. Using worldwide statistics for this area may not be appropriate.

Gilbert Fowler and Joe Buckley discussed the statement on page 42 (summary) from page 6-17 (IEA) which was difficult to comprehend: "Tabulation of all blowouts that have been reported worldwide has shown that one blowout occurred for approximately every 1,000 wells drilled and that one well in 3,300 blew oil." The first refers to blowouts of all sorts - water, gas, and gas and oil. The latter only to blowouts containing oil. Gary Leitch noted that statistics typically quoted exploratory wells rather than production wells. Exploration drilling is a more careful operation because of the greater uncertainty. Joe Buckley added that flows in exploratory wells are much less than for production wells, because a smaller diameter pipe is used. In production, where the object is to get out as much oil as possible, a large (thirty inch diameter) well casing is used.

Doug Saunders asked if oil boom deployment depended on wave conditions. Don Karasiuk replied that oil booms could be used in seas with up to 2 metre waves, but at wave heights greater than that, the oil would go under the boom. In the latter case, the alternatives are to let wave action do the dispersing (do nothing), or to add chemical dispersants to speed up the process.

Larry Jackson wondered whether, in an oil spill situation, public pressure would force the company to take action (e.g. use dispersants) even though the best course might well be to do nothing. Don Karasiuk agreed that there could be such pressure but that industry response is controlled by government. The contingency plan gives the company an option to use dispersants "if human life or property were endangered." He suggested that this might mean if an oil spill was near a settlement, the company might take it on itself to use dispersants but it would still have to justify such action to government.

Don Karasiuk said that there is a misconception that once dispersants are used, the problems are over. The oil is still there, but mixed into the water column so the species affected would be different. If oil is on the surface, seabirds, some marine mammals and other animals living close to the surface would be affected. In the nearshore area, oil mixed in the water column would affect sea bottom life. The Raffin Island oil spill showed that the effects on benthos with oil that had been treated with dispersants were much greater than if the oil had been left alone. It is important to be aware of the tradeoffs. At a certain time of year, if fish larvae were present in the water column, but few seabirds were in the vicinity, then the environmentally best option would be to leave an oil spill alone.

Kevin Columbus commented that public opinion often differs from that of the experts. The Arctic Pilot Project experts in the National Energy Board hearings were saying that the event of a marine disaster was very unlikely, and the next day the Ocean Ranger capsized. Once an event happens the theory doesn't mean as much, and very often things take on an emotional perspective. Don Karasiuk said that as a comparison there was more likelihood of him dying in a car accident than of an oil blowout occurring.

Session 3

L. Jackson asked whether blowouts occur as a result of unexpectedly abnormal pressures. Bruce Berry said that historically blowouts occur in the development stage, when pressures are better known, and these are primarily a result of human error. The recent blowouts in the Gulf of Mexico and the North Sea are examples of this.

Bruce Boles asked whether there had been any oil blowouts in cold water. Bruce Berry replied that he knew

only of two, in 1969 and 1971 in the High Arctic. These contained only gas and water. Drilling of relief wells was necessary to regain well control. Normally relief well drilling takes the same length of time as for the original well. It involved moving the rig about half a mile and drilling another hole in the direction of the first one. Weighted muds are pumped down the relief well. The original hole blows until plugged with mud from the relief well. This mud creates a back pressure which stops the blowout. More than one relief well may be necessary to stop a blowout.

Larry Jackson asked about the provision to end seasonal drilling by a certain date. Bruce Berry said that October 15th is the close-down date for offshore Labrador. This is both a precautionary and practical measure, as there is so much downtime during late season drilling that it is uneconomical.

Bruce Berry, in response to a question from F. Flynn, could not guarantee that a relief well could be completed late in the season before the ice closes in.

Bruce Boles asked Wish Robson to outline Petro-Canada's contingency plans. His response was as reported to Workshop Group A (see page 31). He also noted that, in the event that the Federal Government is not satisfied with the cleanup effort, it can take over the coordination of the cleanup operation, although the company would maintain control of the relief well drilling operation, except in the most extreme cases. Consultants are on standby to determine slick trajectories. Insurance and compensation schemes are in effect at the same time. The contingency plan spells out the responsibilities of all people involved in the cleanup.

Larry Coady asked if the Coast Guard would take the lead in coordinating spill response. Wish Robson replied that the company would maintain operational control. A COGLA representative would review the decisions on priorities. DFO, EPS and CWS act as advisors through the Regional Emergency Response Plan. Larry Coady suggested that in view of the amount of interest expressed at the seminar, there would be value in having a short section in the IEA on oil spill contingency planning and countermeasure strategies (i.e. relief well drilling and the use of dispersants). Wish Robson said that separate manuals have been developed for contingency plans in the Labrador Sea, and the IEA is part of the operational documentation.

Larry Jackson asked if technology advances had changed the gloomy picture of the results of an oil spill under ice. Wish Robson replied that a well which is not brought under control during the open water season will flow under ice unless it "bridges" itself. The Canadian Offshore Oil Spill Research Association (COOSRA) has sponsored projects in the last few years to examine ways to handle and recover oil in pack ice. A method being looked at is the monitoring of oil movement under ice with tracker buoys. This would enable spill response teams to determine where the oil is and thus they could plan recovery and disposal operations. Methods of oil recovery and disposal being studied include burning, the use of submersibles, and vacuums.

The Baffin Island Oil Spill (BIOS) at Pond Inlet found that oil spreads along the bottom surface of the ice and penetrates the ice through brine channels. A gelling agent was injected, and was found to work quite well. The oil plus gel formed a rubbery mat which could be pulled up and burned. This mat included the oil that was in the brine channels. Equipment for mechanical recovery has great difficulty operating in ice, so that other methods are being investigated.

Larry Coady asked Wish Robson to clarify the use of air-deployed incendiary devices. Wish said that this was still a viable option, to be used for burning pools of oil found in the spring after the ice melted. Dome Petroleum used these in its experimental oil spill in the Arctic two years ago. The devices use potassium permanganate in a form that is similar to that which foresters use for lighting back-fires. In first-year ice you would still look for pools of oil in the spring, and this technique might be used if the oil was close to shore and within the range of a helicopter.

Larry Jackson wanted to know if industry considered the C-CORE oil spill scenario, which is used in the IEA, to be a valid one. Wish Robson answered that yes, it basically is. Larry Coady commented that it is unfortunate that even though we have the best equipment, it may prove to be inadequate. Wish Robson said that although this may be the case, there are always new methods and equipment being tested. For example, a sombrero system over the well was used to capture and channel the oil from the Ixtoc blowout, in the Gulf of Mexico, but there were no barges there to pick up the oil so it had to be pumped over the side. A subsea containment system is being investigated by the

Massachusetts Institute of Technology. Eventually, because of new developments, the C-CORE scenario will be out-of-date, but at this time it is still valid.

Bruce Boles noted that the C-CORE scenario used a 5000 barrel/day spill; but that Petro-Canada in the IEA seemed to think that 1/10 of this amount would be more realistic. Wish Robson replied that it isn't known what the pressures and the flow would be, however he felt the figures used in the IEA were more realistic.

Larry Jackson noted that the cutoff date for drilling was October 15, and wanted to know under the good conditions of summer, how long it would take to drill a well to maximum depth. Bruce Berry replied that it takes ninety days plus. Larry Jackson pointed out that, even if a blowout occurred at the end of August it wouldn't be possible to drill the relief well before the cutoff date. Bruce Berry agreed, noting that the cutoff date is a compromise. If well problems occur, some time is available to correct the problem before winter sets in.

Bruce Boles wanted to know if there had been serious drilling problems offshore Labrador. Bruce Berry replied that no really serious problems had occurred. On a couple of occasions, there have been kicks (formation fluids coming into the well bore). These have been corrected by circulating weighted mud down into the well. A supply of this mud is on board the drill ship and the process can begin immediately. Stuck pipes have been a financial problem but this would not cause a loss of well control. Side-tracking and redrilling is necessary and took up to three weeks in one instance this past summer.

Larry Coady asked if there is interest in other drilling areas in offshore Labrador, for example, the slope in deeper water. Bruce Berry thought that drilling on the slope might take place within the next few years. One of this year's wells, the deepest to date, was drilled in 1400 feet of water. Drilling in 2,000-3,000 feet of water might be possible one day.

Wish Robson noted that oil from a blowout rises because of gas bubbles entrapped in it. Below about 750 feet (water) the pressures lead to the formation of gas hydrates. These settle out, and the oil rises very slowly. If there was an oil spill from a well at these depths, oil might never reach the surface as a slick, hence, a greater amount of oil would be dispersed in the water column. Below depths of 2,000 feet, the dilution

would be very great. Industry-wide reports of all wells drilled show that exploratory wells have the least incidence of blowouts. Bruce Berry noted that about 63 or 65% of exploratory well blowouts "bridge" themselves (the formation closes in on itself) and the well flow stops within a couple of weeks. Bridging is quite likely in the exploratory drilling stage, where a small (12 1/2" diameter) well bore is used.

Larry Jackson turned the discussion to community liaison and asked whether the delegates would like to have local meetings which Petro-Canada could attend, or were people more interested in going about their own business.

Frank Flynn said that, as a representative of a fish company, it is important to know what could and would happen in the event of an oil spill. He agreed with Gilber Fowler, Diane Martin and Clyde Saunders that the prevalent attitude is one of disinterest, perhaps from not knowing which direction their concerns should take, but also based on the assumption that if oil comes, there's not much that can be done about it. The most likely area of general concern is the effects of oil on the fisheries. The Summary of the IEA and subsequent presentation of material during the seminar were found to be useful, with a lot of information being given, but it appeared that many found it difficult to absorb all the information that had been presented.

A number of people felt that there is a need for the communities themselves to generate their own interest in the impacts of oil on the environment and communities. Wayne Piercy noted that he had made contacts primarily through his own initiative, but pointed out that he would prefer to receive invitations for special meetings to know he is wanted and not imposing on others. Doug Saunders agreed that people sometimes feel imposed upon, but he observed that people had been interested in the OLABS studies in the areas in which the studies were being conducted. Larry Jackson noted that, in the past, there wasn't much community interest in the Memorial University video series on oil. When the Environmental Protection Service was determining the area for a controlled oil spill study, the residents of Makkovik weren't interested, whereas the attitude in Pond Inlet, Baffin Island was that this would be a valuable exercise.

Gilbert Fowler and Frank Flynn felt that the apparent lack of interest stemmed from a number of past experiences

of the coastal residents with many government departments in the past 5 or 6 years. So much in the past has gone opposite to what people wanted that this attitude now extends to an involvement with the oil companies.

Larry Coady and Wilfred Lane pointed out some positive examples of communities being able have an influence on decision-making. For example, the bulk of the briefs submitted at the Brinex hearings on a uranium mining proposal were in opposition to the project, and it was subsequently rejected by government.

Larry Coady noted that the Labrador fishermen's committee framework is amongst the strongest in the Province. A number of problems have been solved by these committees and there have been a lot of benefits. Gilbert Fowler pointed out, however, that in April the fishermen's committee submitted a brief to get a number of questions answered. Responses came from the Federal Departments of Environment and Fisheries and Oceans, but the Provincial Departments of Environment and Fisheries neither recognized nor responded to the brief.

Larry Coady restated his observation that community involvement can be positive and people can affect decisions.

4.0 CLOSING PLENARY SESSION

Following conclusion of the workshops, a Closing Plenary Session was convened with the workshop chairpersons sitting as a panel. Each chairperson initially gave a brief presentation of the major points of discussion from their workshop groups with emphasis on any recommendations for further work. This was followed by a general discussion.

4.1 Workshop - Chairperson Reports

Workshop Group A - Mary Mackey, Chairperson

The discussion in this workshop group fell into three main categories, communications, employment, and compensation.

Communications:

People felt that a gap existed between the present level of awareness and the information they should have. Participants felt there was a need to synthesize the information exchanged during the seminar. To do this properly, some kind of assistance is needed in making presentations to the groups represented. It was suggested that the perceived needs of the communities could be discussed during the community liaison session (Friday morning).

Employment:

There was concern about the apparent lack of information on opportunities for employment in the oil industry, and about the mechanisms for applying for these jobs. While CEIC (Canada Employment and Immigration Centre) handles job applications, their records contain information about the types of jobs people have had, rather than the ones people might be interested in. Information is needed on training programs.

Concern was expressed that, because the major supply base (St. John's) is not in the region, communities are receiving little economic benefit from offshore activity.

Compensation:

Concern was expressed over the time it would take to receive compensation for lost or damaged fishing gear.

Much discussion focussed on the issue of compensation for the use of, or access to, areas that might be damaged because of an oil spill. This led to a discussion of impacts including the recovery time for various species and the effect this would have on harvesting and hunting of seabirds, marine mammals, and fish for food. There were questions whether marine life that had ingested oil could be edible.

There was interest in the operational mechanisms for compensation, and there was some discussion of the roles of different agencies as they relate to oil spill control.

Workshop Group B - Judy Rowell, Chairperson

The workshop group began by discussing some of the possible geological events that might affect abandoned wells.

Discussion on the study of currents and the drift card program raised the point that since the cards were rarely seen, the program itself might not be effective. More information about the satellite tracking studies should be provided.

There was some discussion on the effects of drill ship noise on marine life.

The historical and present importance of the ice edge, related to biological activity and harvesting pursuits, was discussed. This led to further talk on the roles that these and polynyas (open water) might have in slick trajectories and in oil spill contingency planning.

Oil spills were discussed in terms of the possibilities of oil coming on shore and the subsequent impacts. Considerable comment surrounded the possibility of oil ending up in the Strait of Belle Isle and the possible effects this could have on whelping seals. Concerns were expressed about the effect of an oil spill on the fisheries. The point was made that the fishery will be here longer than oil.

There was some discussion on the information that the people in the communities would like on the biological and social aspects of Petro-Canada's operations. The role of the fishery and its relation to the petroleum industry were discussed. Training programs are needed in the high-technology aspects of the fishing industry as well as in oil and gas.

Many people from the coast had not realized that organizations such as the East Coast Petroleum Operators Association and others existed, and that there might be agencies and sources of funding for research that could be accessed by Labrador organizations.

The group identified a need for cooperative research involving the petroleum, transportation and fishing industries because of their common use of the oceans.

There was a lengthy discussion on Petro-Canada's contingency plans. Concern was expressed that Petro-Canada does not have a comprehensive compensation policy for the offshore. At present there is no compensation for lost access to food resources as distinguished from lost income or fouled gear. The need was identified to have public comment on the contingency phase of operations. The mechanism for obtaining compensation needs to be clearly explained to the people of coastal Labrador.

Employment opportunities with Petro-Canada's operations, the associated training programs and the mechanisms for receiving information about them need to be better described.

Unfortunately, there was no representative at the seminar from the Canada Benefits section of COGLA, the organization which could be expected to address the issues of business opportunities and industrial benefits. Neither the people nor the local business community were aware of COGLA's preferential hiring policies for contracts. There was a clear expression of the need for this information from COGLA.

The Labrador North Chamber of Commerce was pleased with Petro-Canada's involvement in the local economy. Their representative expressed a willingness to assist the northern communities in pursuing business opportunities.

The representative from the Torngat Fish Cooperative strongly criticized the fishery section of the IEA. The data are outdated and do not reflect the recent dramatic increases in landings and value. He gave dollar values for the landings which show that the fisheries are a very valuable resource.

A further comment was that the IEA did not assess the projected displacement of communities that might occur in the production phases of petroleum activity. This very serious impact needs to be addressed.

Lastly, the group dealt with the process of following up the seminar. They want to know what will happen to comments and suggestions for research priorities and whether Petro-Canada will come back with responses to comments and criticisms.

The key needs identified were:

1. development of a compensation policy relevant to offshore Labrador;
2. consideration of food resources in compensation schemes;
3. the opening up of contingency plans to consultation;
4. a listing of all the agencies and programs which represent possible sources of funding available to local communities;
5. a better information program to make the communities aware of activities both in Petro-Canada and in government agencies; and
6. an assessment of employment opportunities and training programs related to the Labrador coast.

Workshop Group C - Larry Jackson, Chairperson

The IEA comments on the relative efficiency, value, and importance of the onshore and offshore fisheries were criticized. One of the delegates pointed out that much of the fish taken is salted rather than fresh frozen. The remarks in the IEA about the quality of fish don't reflect what is going on in the fishery.

There was a lot of concern expressed that the proposed study on cod larvae distribution has been postponed. Wayne Speller stated the view of Petro-Canada that it is prudent, before undertaking such a costly study, to wait until a major discovery is made and plans to develop it are approved. Larry Coady supported this delay because at present there is insufficient information on currents to indicate where to search for larvae. People on the coast recognize that cod is the backbone of the economy. The coastal residents were dissatisfied with the postponement of the study. While aware of the costs and difficulties involved, they would be relieved to see the cod larvae study started.

One of the delegates spoke several times about the need to keep in mind that large changes can occur in the environment over time. Even those studies that are very thorough give an intense picture only for those years studied. Consequently, any effort to adequately describe the environment will be a costly undertaking.

The group addressed the question of who is to be responsible for needed research. Petro-Canada expressed the view that while the petroleum industry is expected to pay for such studies, other users of ocean resources (transportation and fishing companies) are not required to research the consequences of their activities.

There was discussion on some oil pollution incidents that have happened off the coast. Reporting procedures were discussed along with the need for information or results to be communicated back to the affected community. It was noted that whenever there is something unusual in the environment, such as a hairless seal, there is a tendency among people to blame whatever is closest or newest, such as the oil industry.

There were some issues about which little consensus was reached between the delegates on one hand and government and industry representatives on the other. One issue was the extent of damage from an oil spill. The coastal delegates could not think of any catastrophe more horrendous than a major oil spill. Some of the resource people pointed out that biological resources would recover.

There was an opinion expressed that coastal people have little influence in decision-making, i.e. "We're only 6500 people, we're a long way from where the decisions are made, and we're not going to be able to change anything." Some of the oil industry and government people in the group disagreed with this perception and urged local residents not to take such a pessimistic view, because they do have a real influence on decisions.

The workshop group addressed the question of the importance of offshore exploration to people on the coast. They discussed questions such as how much do local residents want to know, do they want to become involved, and how much does the topic of offshore oil and gas exploration occupy their thoughts? On the last issue answers ranged from those who said they don't think about it at all because they feel they can't influence it, to others expressing greater interest.

Some delegates felt that there was not much interest in employment with the oil industry in their communities. Sandwich Bay is an area which has had a disastrous cod fishery for about half a generation and interest in alternate employment might be expected here. Surprisingly few people appeared willing to abandon the fishery for alternative work opportunities.

There was discussion on the need for baseline studies which arose from the concern that without prior knowledge of the resources, damage could not be readily evaluated.

Communication between people on the coast and industry was discussed. The Summary was found to be good although it still contained a lot of technical language which was difficult to understand. There was a realization that because the IEA was written by scientists, there is no way to further reduce it. There is a great need to translate technical information into understandable common language.

There was a lot of discussion about oil slicks, blowouts and contingency plans. It surprised some and disturbed nearly everyone to hear that, even though drilling stops in October, it could well be that a relief well to stop a blowout would not be completed before winter.

The workshop session ended on a negative note. The delegates felt that the majority of their previous experiences with government organizations and agencies had fostered the attitude that they cannot be very effective in influencing government decisions. On one hand people are interested in the offshore oil business because it may well affect them, and they want to know more about it. On the other hand they don't want to invest a lot of their energies into trying to make themselves effective in their dealings with the oil companies because they don't have a great deal of hope that they would be successful or that they would even be heard. This was disputed by several of the government and industry people.

4.2 Discussion

Larry Jackson noted that John Curran (Petroleum Directorate) had said in the workshop session (Group C) that social impact assessment in Canada was still in a primitive state and was inexact. He asked Mr. Curran if he could speak again about the differences in these

processes between the Avalon Peninsula and Labrador. J. Curran replied that, as a sociologist, he had been hired to put in place a mechanism for the Hibernia social impact assessment. Because Hibernia is a known discovery, factors such as the locations of onshore and offshore development and some of the associated impacts are known. This is not the case in Labrador. J. Curran said that it was more important, at this very early stage of impact assessment in Labrador, to understand how people live and the components of the annual cycle, than to amass baseline data.

Don Karasiuk said that he was disturbed by the comments made during the plenary session that the delegates and the communities they represented had expressed the opinion that their voices would never be heard. He suggested that there be a discussion about this alienation and the ways in which communities could communicate their concerns to Petro-Canada.

B. LeDrew invited comments from the agencies (Petroleum Directorate, COGLA) that regulate the oil industry.

Ray Hawco said that there was reason for people to be skeptical about being heard by government or by industry. Traditionally there has been one voice making decisions for the communities in rural Newfoundland and Labrador. Only in the last four or five years has government specifically stated that they want more public participation, however, it is not easy to put in place an appropriate mechanism. A number of pilot projects have been started. A six-month consultation process on the west coast of Newfoundland (for proposed onshore and nearshore exploratory drilling) brought together organizations to represent the region. If this project is successful, it will illustrate that the Provincial Government is responsive and the people of Labrador can feel confident that the Government is listening to them.

D. Hardie pointed out that because COGLA has been formed only within the last year, the policies and approaches for handling these issues are still being developed. The Canada Benefits section will deal with socio-economic benefits and community liaison with, for example, the Labrador communities. The Environmental Protection branch of COGLA will be the contact for issues directly related to the environment.

J. Rowell noted that, despite a specific request to COGLA that a representative of the Canada Benefits Group attend the seminar, one had not, and no explanation had been given. This action contributes to the cynicism and frustration of local people. On behalf of the LIA, she asked D. Hardie to relay the message to COGLA, that if we want to get together, then we've all got to agree at least to sit down.

L. Coady was surprised by some of the comments that the communities felt they had no impact on Government. Since the early 1970s, the Labrador coast has developed strong organizations such as community councils and fishermen's committees. Communities have had impacts on decisions, such as Makkovik and Postville had on the Brinex hearings. From his experiences around the Province, L. Coady expressed his opinion that Labrador communities have one of the strongest regional voices in the Province.

B. LeDrew suggested that perhaps a feedback mechanism was missing and communities were not aware of reactions to their concerns.

T. Williamson said that the Department of Fisheries and Oceans had helped to set up the fishermen's committees in 1972 to establish a system for communication and decision making. Their system worked because results were quickly seen. This is not true for all other agencies and 'people' organizations in Labrador. T. Williamson agreed with B. LeDrew, saying that the system works when an organization has a clear focus and a strategy for communication and feedback.

B. LeDrew said that the issue of communities making their concerns known was an important point. He asked the delegates from the communities for their comments on the usefulness of the seminar and their suggestions for changes.

Frank Flynn replied the seminar had been useful to him and probably to the rest of the group. Much more had been learned during the seminar than could have been derived from the Summary alone. He agreed with L. Coady that people are being heard by the Government, but felt that, in a way, it had been like listening to an alarm clock. The Government hears it, shuts it off and goes back to sleep. He thought that the cod larvae study might become another example of this problem. Concern for the

cod larvae is felt by all the fishermen, but both government and industry have said the costs are too high, and consequently the study probably will not be done in the near future unless something drastic happens.

Garfield Flowers said that he had learned a lot during the seminar. He stressed that the issues should be followed up, and perhaps another seminar held.

4.3 Overview

B. LeDrew then summarized the plenary session. There was, he said, a general feeling of satisfaction with the accomplishments made during the seminar. The process of bringing people together, having discussions, and arriving at answers and conclusions was a difficult one. It was also a difficult task for the delegates to represent the concerns of all the people along the coast and in the upper Lake Melville area.

B. LeDrew commented on the discussions of oil spill scenarios. He pointed out that the only certainty of an oil spill scenario is that if and when a blowout occurs, it will not be as it was described. Discussions of these extreme events are useful in preparing government, industry and people to react, and for having the appropriate studies carried out. However, this very discussion leads people to perceive that the event is more likely to occur. In fact, this heightened awareness should serve to reduce the likelihood of what is already a highly unlikely event.

The main points made during the seminar were "what is offshore oil and gas going to do for me" and "what is offshore oil and gas going to do to me." The first question can be restated as what are the opportunities, jobs and other benefits that could come to me. It can be addressed through a process of education and providing information. Comments have been made about the effort that Petro-Canada has undertaken to make people aware of these jobs and benefits.

The other question, "what is it going to do to me" refers to a major oil spill, and led to a discussion of oil spill contingency planning. This discussion identified means to prevent or protect from a spill. There was considerable discussion concerning the compensation for damage or losses, and the policies for compensation. Again people were asking for information.

The next day's session will examine the effort made by government and industry to provide community liaison and the process of information exchange and feedback. While separate from the seminar, it will flow logically from the discussions of the past two days.

4.4 Closing Remarks

Wayne Speller presented the closing remarks for the seminar. He thanked the community representatives saying that he appreciated their time and patience in reviewing the IEA. He hoped that Petro-Canada had done its best to explain the many technical issues, and that the representatives would take the benefits of the seminar back to their communities. He noted that in examining the IEA and Petro-Canada's activities, concerns had been expressed about such things as contingency planning, job training and availability, compensation and the need for further studies. He acknowledged the difficulty of absorbing all the information and pointed out that people now knew who to contact in Petro-Canada and government, and hopefully people would be able to use the information in the IEA to provide some of the answers.

Wayne Speller invited those people with specific concerns, views on the format of the seminar, and suggestions for the writing and reviewing of any future documents to discuss them with himself, other Petro-Canada representatives, or B. LeDrew. W. Speller felt that the forum had been appreciated and might be useful again. Petro-Canada would want to do this in the best manner possible.

5.0 COMMUNITY LIAISON

NOVEMBER 19, 1982 - 0900-1200

A. Williamson acted as chairperson. Three formal presentations were made by a representative each from Petro-Canada, the Federal Government (COGLA) and the Provincial Government (Petroleum Directorate).

Petro-Canada

Gary Leitch (Petro-Canada) reviewed the history of his company's experience in Labrador with community consultation. Prior to 1980, Total Eastcan was operator for the Labrador Group. In April 1979 Petro-Canada, in anticipation of becoming operator, started its community consultation effort with visits to northern communities to explain Newfoundland government regulations covering oil and gas exploration. The focus was on northern communities because these were considered the areas most sensitive to any oil spills.

Early on it was found impossible to effectively carry out community liaison efforts from Calgary so that a community liaison officer position for Labrador was identified and the post filled in July 1981 by Wayne Piercley who works out of the St. John's office.

In the past eighteen months Wayne has dedicated all his time to Labrador, yet it is only recently that he has been able to complete at least one visit to every coastal community. This is mainly a function of travel and scheduling difficulties.

The approaches taken to community liaison have included the following:

- Formal meetings with community councils;
- Informal visits and meetings;
- Information gathering exercises, such as the resources harvest atlas where Petro-Canada has funded consultants to gather needed information; and
- Seminars such as this one where representatives of communities and organizations are brought together.

Each approach has limitations. Formal meetings with community councils can be difficult to schedule. Informal visits can be inefficient if there are few people available to meet with. Seminars such as this one require one person or a few people to represent a community. They can find it difficult to convey a large volume of information back to the people they represent.

It is a requirement of COGLA that Petro-Canada carry out a community consultation process. At this meeting Petro-Canada wants to receive ideas on how to better and more effectively implement this requirement. For example, should the company be more aggressive in knocking on doors (and run the risk of bothering people) or should their staff stay in their offices waiting for the phone to ring with requests for meetings.

While the comments and feedback being solicited will help Petro-Canada and, in particular, Wayne Piercey, do a better job, they should primarily help the local communities which are the object of this community consultation effort.

Following the presentation by Mr. Leitch, questions of clarification were solicited.

Garfield Flowers enquired about plans to translate seminar proceedings into the native languages. Fran Williams sought a commitment to have the various documents translated. Mr. Leitch confirmed that the seminar will be documented in a report and stated that, while the whole report will not be translated, he was willing to consider translation of the IEA Summary and a summary of discussions from the seminar. It was pointed out that it would probably take 1 1/2 years to translate the whole IEA or the report on the seminar.

Clara Michelin asked which communities are included in the community liaison efforts. Mr. Leitch responded that the focus was on coastal communities plus the western Lake Melville area (Happy Valley-Goose Bay, Northwest River, Sheshatshit).

COGLA

Duncan Hardie made a presentation on behalf of the Canada Oil and Gas Lands Administration. He started by pointing out that the message had been effectively conveyed over the last two days that there is a need for greater community consultation, especially from COGLA.

While OLABS (Offshore Labrador Biological Survey) was underway, there was a community liaison officer in Labrador to keep people informed of the research program. At present Wayne Piercy keeps this effort going on behalf of Petro-Canada. In general, COGLA leaves with the oil companies the responsibility to carry out community liaison efforts and to explain their activities.

Within COGLA there are two groups with whom communities could be dealing, the Canada Benefits Group and the Environmental Protection Group.

While COGLA does not feel that it requires a continual community liaison program, Mr. Hardie assured the audience he would take the comments he had heard over the last few days back to his organization. Hopefully, he stated, the concerns of the communities, as referred to by Judy Rowell, can be translated into a more informative program both for COGLA and the communities.

There were no questions of clarification.

Petroleum Directorate

Ray Hawco spoke on behalf of the Petroleum Directorate, Government of Newfoundland and Labrador. He reviewed the history of the Petroleum Directorate since its establishment in 1979/80. The Directorate is the arm of the Provincial Government set up to administer the Oil and Gas Act and also function as the primary contact for the oil industry. The responsibility for community relations rests with Ray Hawco. Because it is impossible with a staff of one to cover off all the prescribed responsibilities, activities have been prioritized and attention given to those at the top of the list. Because of this, little, if anything, has been undertaken in Labrador.

Mr. Hawco described his approach to community relations as a community development approach. The public education function of local organizations is used to make people aware of what's going on in a community and what could happen to them. These local organizations are accessed by Mr. Hawco so that he can work with, rather than replace them.

It was pointed out that the Province's Oil and Gas Act is founded on a basic philosophy of the government, i.e. that there should be public participation in decision-making. Mr. Hawco provided two examples where his community relations work has resulted in an application of this philosophy.

The Southern Shore Impact Committee resulted from a contact made with government in late 1980 by several communities from the Bay Bulls to Trepassey region who were concerned about potential impacts from the Hibernia development.

In its brief history, the people involved initiated several things:

- Elected a steering committee comprising community organization representatives;
- Identified areas of primary concern (fisheries, education, local transportation, local government);
- Invited industry, government and university people to visit them and discuss impacts.

In late 1981, a set of draft guidelines was issued by the Provincial Government for the submission of development plans by industry. Public comment was solicited and the only public input (from an unfunded organization) came from the Southern Shore Impact Committee. They made seven recommendations, of which six were placed verbatim in the final guidelines. This was an indication that government listened to this group.

On the west coast of Newfoundland, there is interest in onshore oil exploration and the government has invited companies to submit exploration proposals. About one hundred proposals have been received and about a half million acres of land tentatively made available for exploration, subject to a six-month consultation process that was initiated April 1982.

Local interest was expressed by groups in Bay St. George as well as Hawkes Bay/Parsons Pond. Steering Committees were established to broaden the participation in the consultation process and a series of meetings were held over the last six months involving Petroleum Directorate, Federal Government, and university people. A brief is now in preparation by these Steering Committees and will be submitted to Provincial Government for consideration.

Mr. Hawco pointed to these two experiences as evidence of the need for local communities, when faced with an activity such as oil and gas exploration, to take the first step themselves rather than wait for industry or government to tell them what will happen.

Judy Rowell commented that the message received by Mr. Hawco's presentation is that the Petroleum Directorate is going to sit back and wait until there are clear signs that something is going to get to the stage of production. She criticized this as a reactive approach. Citing the late involvement by the Province in the Arctic Pilot Project, Ms. Rowell expressed the opinion that early planning for proposed or possible projects should be undertaken.

Mr. Hawco disagreed that the Petroleum Directorate was reactive. He stated that the onus should rest with local organizations to "get their act together" so they are speaking as one voice for a community or region, then to invite people such as himself, to participate with them as a resource person.

Ms. Rowell reviewed the LIA experience with the Arctic Pilot Project hearings as an example where their organization did act, but the Petroleum Directorate was not supportive.

Mr. Hawco emphasized his approach of working on one or two specific cases (such as the west coast example cited earlier) rather than simply visiting a large number of communities, with little tangible accomplishment to show for the effort. He pointed out that an attempt had been made by him to spend two months in Labrador this past summer, but it could not be done then. Hopefully, such a visit can be arranged in 1983.

Mr. John McGrath raised a point of clarification. On the Arctic Pilot Project hearings, while the Petroleum Directorate may have had minimal involvement, other agencies of the Provincial Government were involved and worked in concert with the LIA.

GENERAL DISCUSSION

Following coffee, the discussion was continued with comments and questions from participants.

Fran Williams referred to the draft exploration agreement between COGLA and Petro-Canada. It was her understanding that several concerns had been raised by COGLA and she asked what had been done to address these items. Gary Leitch pointed out that the present meeting was in response to these concerns. COGLA had expressed concern that community consultation wasn't being done as effectively as possible. Petro-Canada disagreed with the

approaches proposed by COGLA, feeling that agency's opinions were based on scant information and a poor appreciation of the problems faced by those trying to work in the area. Nevertheless, Mr. Leitch continued, Petro-Canada was not entirely satisfied that they were doing everything correctly, so they made a commitment to hold this workshop and, based on the feedback received, examine how the company could improve or change its programs. This was acceptable to COGLA.

When Enoch Obed expressed concern that only one person was employed by the Petroleum Directorate to work on community liaison, Mr. Hawco explained that the Directorate consists of a full staff of 50, of which 40 are professionals. Community relations isn't a major part of the Petroleum Directorate activities. Given the major commitment by the Province to offshore jurisdiction, much of the effort by the Directorate has been in support of legal actions.

Clara Michelin asked whether COGLA has any mechanism to ensure the oil companies carry out community consultation as required. Duncan Hardie explained that companies wanting to drill in the offshore must negotiate with COGLA an Exploration Agreement. One important element of that agreement is the Canada Benefits Package. The community consultation process is identified as part of that package. If the regulatory agency receives feedback which suggests, for example, that a company is not carrying out a consultation program to the level of expectation of the people of the region, this issue is brought to the attention of industry by COGLA.

Judy Rowell referred to a provision under the Canada Oil and Gas Act that allows for the establishment of an advisory committee. She advised that the LIA has telexed the Minister of Energy Mines and Resources to request such a committee be set up as it is the only available structured route for consultation.

Randy Sweetnam of the LIA pointed out that the experience with the present seminar provided evidence that a community representative approach to a community liaison program is not acceptable as it puts too much onus on an individual to be responsible for reporting on the great amount of discussion that occurs. It is not, he asserted, the responsibility of an individual who is a volunteer, to do the work of Petro-Canada.

Gary Leitch agreed that there is a real problem of transferring a large amount of information to the

communities through individual representatives. He went on to make a philosophical point related to duties of a citizen. In his view, Mr. Leitch felt that a concerned citizen has some obligation to make himself and his community aware of those things that are of importance to his community and to himself.

The crux of the discussion is how do we communicate better, keeping in mind the real operational constraints imposed by finances. One alternative, for example, would be to have a community liaison officer for each community. Obviously, this a very expensive alternative and the company would probably not support it, and neither would government insist on it.

Randy Sweetnam went on to make two other points. Firstly, he felt that while Petro-Canada has developed some sort of profile with organizations along the coast, it has not done so at an individual level. Generally, Petro-Canada is not well known and neither are its activities. Secondly, the LIA written submission to the conference includes a set of guidelines describing what a community liaison program should involve, and an analysis of the Petro-Canada effort. Mr. Sweetnam was not prepared, at this time, however, to review what those recommendations/guidelines were.

Mr. Leitch pointed out that Petro-Canada had tried to improve its community liaison capability by having Wayne Piercy available on a continual basis to visit communities and meet with local organizations. What is needed now is an expression of interest from communities and an expression of precisely what it is they are concerned about.

Clara Michelin stated strongly to Ray Hawco that the channels of communication have been opened in Labrador for the past several years by Petro-Canada and by government agencies other than the Petroleum Directorate. These channels can and should be used by the Petroleum Directorate. Ray Hawco, in response, stated his preference that a specific invitation be extended and pointed out that he was responsible to cover the 750-800 communities in the Province and not just the 30 in Labrador.

Mary Mackey pointed out that some positive things have happened with community liaison in recent years, for example, the Petro-Canada newsletter. She reported on one suggestion that had come out of her workshop group. Schools should be visited by people who have firsthand

experience in the offshore, for example, those who participated in the visit to the rig last summer. The slide/tape show that Wayne Piercy uses to describe offshore drilling could be distributed for use by community delegates attending this meeting and they could use it when they report back to their communities. Labrador will soon have a teleconference network and this could possibly be utilized in improving communications.

Randy Sweetnam expressed the view that he had hoped more time could have been spent discussing the Petro-Canada community liaison program. Nevertheless, it is valuable, he felt, to get exposure to the government regulatory agencies, to learn that neither has put together a community plan of their own. He expressed the hope that representatives of COGLA and the Petroleum Directorate would take back to their more senior people the message that the LIA does not feel that these organizations are committed to community liaison at this time. Enoch Obed echoed this sentiment and expressed a wish to see these agencies more involved in communities so they make people aware of and sensitive to their authority and the power these agencies have over industry.

Duncan Hardie stated his intent to transmit the concerns expressed to the people in COGLA who are directly responsible for community liaison.

Clara Michelin expressed the opinion that, over the past year, Petro-Canada has attempted to do a fair job, given that consultation is a difficult task in Labrador. She repeated her concern that the Petroleum Directorate has not become involved in community liaison efforts and this hampers that agency's ability to have meaningful input to the oil and gas industry.

Gary Leitch pointed out that the process of consultation and soliciting advice on how to improve community liaison efforts would not end with this meeting. He expressed the hope that the meeting had stimulated thinking on this subject and, after people had taken the time to give the subject more thought, they would communicate their comments and suggestions to Petro-Canada.

Lawrence Jackson pointed out the difficulty of taking something useful away from a meeting such as this one. At the end of an exhausting exercise, especially one involving technical questions, the participants leave with a sore behind and a muddled head. A full report on the

meeting can take several months to produce and distribute so that by the time it is issued people have forgotten about it. As a partial solution, it was suggested that a brief one or two page list of highlights be produced before the end of the meeting and handed out so people have something to take back home with them. As a second suggestion, the resources of Memorial Extension Service could be made available to help organize local or regional conferences or seminars on the topics raised at this meeting.

Tony Williamson responded to the suggestion by Garfield Flowers to have the sessions videotaped and replayed at community public meetings. He pointed out that without time consuming editing, the final product would be a very poor one.

Doug Saunders asked how much use Petro-Canada had made of the media. Gary Leitch indicated that little use had been made of it in Labrador, mainly because of the internal problems relating to deciding who can speak for the corporation and deciding what they can say.

Bill Flowers urged that if there is enough interest at the community level, Petro-Canada and the government agencies should hold public meetings to discuss opportunities and potential impacts. This should be done after making proper preparation and allowing sufficient lead time. He felt that much of what had gone on over the past few days had been useless in that the technical information presented was too complex for anyone but the scientist to absorb. He also suggested that more persons be hired to carry out community consultation, although he recognized this may not be feasible at this time.

Fran Williams provided a closing remark by thanking Petro-Canada for opening up the IEA review and providing those present with an opportunity to come to the meeting. She then presented to Petro-Canada, COGLA and the Province a review document that had been prepared by the LIA.

OVERVIEW

An overview of the community liaison session was then provided by Bevin LeDrew.

"A couple of obvious things came out of the session this morning. One is the need for the full set of actors involved in this exercise to focus in on the needs for transfer of information. Petro-Canada is making an effort, but government, in general, with its limits on

resources, has not been participating in this function of informing people. The Federal Government has not really conducted a program of informing people as to just where they fit in the scheme of things and what agency does what. The word COGLA still is a foreign acronym to most of the people here. The different branches are not well known and this is not surprising. The same holds true for the Provincial Government, and, certainly, one can appreciate, given the limitations that any agency has and given the stage of development of the Hibernia field, that there are going to be limits as to what can be done here. Perhaps this present meeting will serve to provide a message to government that, at this stage (exploratory drilling), in this area (coastal Labrador), there is a need for people to know what the role of government is in regulating these activities.

"Bill Flowers made a point which, perhaps because we're tired, didn't get challenged and that is the point about the level of technical detail. We have a document that is put together by specialists. I suppose the point that Bill would raise is that if you've got a geological description, who but a geologist could really totally understand it, and, to an extent, I know what he's saying is correct but I think, in general, there has to be an effort to convert technical information to a language that people can understand. While we accept that not all of it is going to get to everybody, some of it will. From the comments made by Petro-Canada staff who were at the Scientific Review Seminar as well as at this seminar, it is clear that they received helpful and interesting responses from people here, so that both sides have something to learn. But it is a frustrating and difficult exercise to take this kind of volume of technical information and make it readily available to everybody in a simple language. Nevertheless, the effort should be made.

"Regarding the discussion of what should happen with community liaison, it's quite clear that those questions of concern which came out over the last couple of days can be highlighted as questions of what the oil industry can do for me (How can I benefit from it), and what the oil industry can do to me. Those concerns should be used to direct the nature of the community liaison activity, i.e. what are the things Wayne Piercy is going to talk to people about?

"In terms of methods to use, I didn't hear anything exceptionally new or innovative. There were some ideas

that came forward and may be worth trying. Lawrence Jackson made the point that to come forward with an effective report on everything that went on here takes so long that the message is lost. People have pretty well forgotten what's gone on. His point is well taken. If you can get the highlights out quickly, that is probably much better than getting everything out, but getting it out six months after the fact."

CLOSING REMARKS

Gary Leitch provided closing remarks and extended his thanks to the delegates on behalf of Petro-Canada for taking time out from their busy schedules. He urged that people contact Wayne Piercey, John Hunt or himself by telephone (collect) to discuss any concerns or questions they might have. He emphasized that Petro-Canada would be pleased to entertain any suggestion on how to improve its community consultation program.

Petro-Canada staff are willing to meet with local residents in their communities to discuss these things that matter most to them rather than those things identified by others.

EM

November 10, 1982

PUBLIC REVIEW SEMINAR

Petro-Canada
Offshore Labrador
Initial Environmental Assessment

Labrador Institute of Northern Studies

AGENDA

Day One: Wednesday, November 17, 1982
Conference Room

0845 - 0915	Registration
0915 -	Introduction to Offshore Labrador
0915 - 0925	Opening Remarks - W. Piercy
0925 - 0940	OLABS & Its Role - D. Hardie
0940 - 1000	Seminar Procedure - B. LeDrew
1000 - 1030	Introduction to IEA - The Document & The Process - W. Speller
1030 - 1045	COFFEE BREAK
1045 - 1130	Project Description - B. Berry
1130 - 1230	Physical Environment Shorelines - Geology - J. Buckley Physical Oceanography - J. Buckley
1230 - 1300	LUNCH
1300 - 1400	Meteorology - J. Miller Ice - J. Miller
1400 - 1500	Biological Environment - D. Karasiuk
1500 - 1515	COFFEE
1515 - 1615	Biological Environment (Continued) - D. Karasiuk
1615 - 1715	Impacts
1800	DINNER - Airport Restaurant



Day Two: Thursday, November 18, 1982

0900 - 1015	Socio-Economics - G. Leitch Conference Room
1015 - 1030	COFFEE
1030	Workshop Sessions
	Three Groups - A B C Room: Conference Projection Cafeteria Room Room Room
	Chairperson: M. Mackey J. Rowell L. Jackson
1030 - 1200	Session 1 - Physical Environment
1200 - 1230	LUNCH
1230 - 1400	Session 2 - Biological Environment
1400 - 1530	Session 3 - Socio-Economics
1530 - 1545	COFFEE
1545 - 1745	Plenary Session - G. Leitch (Assembly in Conference Room) Chairpersons Presentations Discussion Overview - B. LeDrew Closing Remarks - W. Speller
1800 - 1900	Reception

Day Three: Friday, November 19, 1982
Conference Room

0900 - 0930	Introduction and History of Community Liaison in Labrador - G. Leitch
0930 - 0945	Community Liaison and COGLA - D. Hardie
0945 - 1015	Community Liaison and Petroleum Directorate - R. Hawco
1015 - 1030	COFFEE
1030 - 1130	Community Liaison Discussion - A. Williamson, Chairman
1130 - 1145	Overview - B. LeDrew
1145 - 1200	Closing Remarks - G. Leitch

LEM/Petro-Canada
Public Review Seminar

Offshore Labrador Initial Environmental Assessment

Invitation List

I. Delegates

John Andersen	Community Council	Makkovik, Lab.
Wm. Andersen III	Community Council	Nain, Labrador
August Anderson	Labrador Inuit Association	Nain, Labrador
Olive Blake	Community Council	Northwest River, Lab.
Kevin Columbus	Labrador Inuit Association	Dartmouth, N.S.
Bill Flowers	Torngat Fish Producers Co-operative	Happy Valley, Lab.
Garfield Flowers	Community Council	Hopedale, Lab.
Clarus Flynn	Southern Labrador Development Assoc.	Forteau, Lab.
Frank Flynn	Labrador South Union Shrimp Co.	Forteau, Lab.
Gilbert Fowler	Capstan Island Fishermen's Committee	Capstan Island, Lab.
Reg Hancock	Southern Labrador Development Assoc.	Forteau, Lab.
Dave Hunt	Labrador North Chamber of Commerce	Happy Valley, Lab.
Wilfred Lane	Community Council	Postville, Lab.
Diane Martin	Eagle River Development Association	Cartwright, Lab.
Thomas Martin	Town Council	Happy Valley-Goose Bay, Lab.
Howard Mesher	Eagle River Development Association	Cartwright, Lab.
Clara Michelin	Band Council	Happy Valley, Lab.
David Nui	Eagle River Development Association	Davis Inlet, Lab.
Sydney Pardy	Bank Council	Paradise River, Lab.
Francis Penashue	Naskaupi Montagnais Innu Association	Sheshatshit, Lab.
Greg Penashue	East Shore Labrador Development Assoc.	Sheshatshit, Lab.
Eldred Penney	Labrador North Chamber of Commerce	Port Hope Simpson, Lab.
Sterling Peyton	Band Council	Happy Valley, Lab.
Edward Piwas	East Shore Labrador Development Assoc.	Davis Inlet, Lab.
Paul Pye	Labrador Inuit Association	Lodge Bay, Lab.
Judy Rowell	East Shore Labrador Development Assoc.	Dartmouth, N.S.
Ford Rumbolt	East Shore Labrador Development Assoc.	Mary's Harbour, Lab.
William Russell	Red Bay Co-operative	William's Harbour, Lab.
Edison Ryan	Labrador Friendship Center	Red Bay, Lab.
Doug Saunders	Community Council	Happy Valley, Lab.
Roger Shiwak	East Shore Labrador Development Assoc.	Rigolet, Lab.
Earl Stone	Labrador Inuit Association	Charlottetown, Lab.
Randy Sweetnam	East Shore Labrador Development Assoc.	Nain, Lab.
Daniel Taylor	Southern Labrador Development Assoc.	St. Lewis, Lab.
Hollis Yetman		Red Bay, Lab.



Fish Producers Co-Operative Society Ltd.

P.O. Box 839, Station B
Happy Valley, Labrador
A0P 1E0
(709) 896-3992

Mr. Gary Leitch
Petro-Can Explorations Ltd.
Box 2844
Calgary, Alta.
T2P 2M7

December 8, 1982

Dear Gary:

On behalf of Torngat Co-Op, I would like to thank yourselves and Bev LeDrew of LeDrew Environmental Management Ltd., for the recent opportunity to attend the seminar in Goose Bay to review the Petro-Can IEA for offshore Labrador.

I think that the effort made to bring people in for the seminar and in particular the efforts of your department in terms of community work over the last couple of years has been commendable.

I have been attending conferences like this in Labrador for nearly ten years and although by and large, they are useful, they can also be cumbersome. People who are sent into those meetings are reluctant to speak up (1) because they have a limited knowledge of the subject matter and (2) even when they do speak in many cases they are not sure if they are representing the view of the community due to receiving a very cursory understanding of the subject in the first place. If the meeting were about airstrips, housing or health concerns, you would find a very talkative group of people. However, people are uncomfortable with the oil and gas issue due to a lack

...../2

of basic information at the community level.

These seminars can be very costly, and I would estimate that this seminar cost close to \$ 50,000. For the cost of meetings like this it is extremely important to evaluate the effectiveness of the seminar. I am glad that you are looking for feedback and I hope other comments are coming.

I do not want to playdown the value of the seminar (I know I learned a few things and others I have talked to did as well) however, I believe that the most effective means of consulting with communities is to be in the communities themselves. I believe that more effort and money should go toward this and I commend you for the work you have done to date. The mere fact of distance and geographical locations of coastal Labrador makes communications and transportation difficult. However, Labrador communities must be kept informed in a meaningful way so that we can plan together the future developments of oil and gas.

In economic times such as we are in today, especially in coastal Labrador where economic opportunities are limited, people will welcome fresh, new alternatives.

I enclose a copy of my report to our Board of Directors on the seminar.

We look forward to future correspondence.

Sincerely,



Bill Flowers
Assistant General Manager

BF:vjs

cc: Bev LeDrew

encl.

II. Resource Persons

Bruce Berry	Petro-Canada Explorations Ltd.	St. John's, Nfld.
Bruce Boles	Labrador Institute of Northern Studies	Goose Bay, Lab.
Joe Buckley	Petro-Canada Explorations Ltd.	Calgary, Alberta
Larry Coady	Department of Fisheries and Oceans	St. John's, Nfld.
John Curran	Petroleum Directorate	St. John's, Nfld.
Ken Duggan	Canada Oil and Gas Lands Administration	Ottawa, Ontario
Gerry Glazier	Petro-Canada Explorations Ltd.	Calgary, Alberta
Joe Goudie	MHA, Minister, Rural, Agricultural and Northern Development	Happy Valley, Lab.
Duncan Hardie	Canada Oil and Gas Lands Administration	Ottawa, Ontario
Ray Hawco	Petroleum Directorate	St. John's, Nfld.
Conrad Hiscock	Department of Regional Industrial Expansion	Goose Bay, Lab.
John Hunt	Petro-Canada Explorations Ltd.	Calgary, Alberta
Larry Jackson	Labrador Institute of Northern Studies	Goose Bay, Lab.
Bruce Johnson	Canadian Wildlife Service	Sackville, N.B.
Don Karasiuk	Petro-Canada Explorations Ltd.	Calgary, Alberta
Gary Leitch	Petro-Canada Explorations Ltd.	Calgary, Alberta
Mary Mackey	Extension Services, M.U.N.	St. John's, Nfld.
John McGrath	Rural, Agricultural and Northern Development	Happy Valley, Lab.
John Miller	Petro-Canada Explorations Ltd.	Calgary, Alberta
Lawrence O'Brien	Rural, Agricultural and Northern Development	Happy Valley, lab.
Wayne Piercy	Petro-Canada Explorations Ltd.	St. John's, Nfld.
Allan Richards	Petro-Canada Explorations Ltd.	Calgary, Alberta
Wish Robson	Petro-Canada Explorations Ltd.	Calgary, Alberta
Wayne Speller	Petro-Canada Explorations Ltd.	Calgary, Alberta
Eric Vale	Canada Oil and Gas Lands Administration	Ottawa, Ontario
Tony Williamson	Labrador Institute of Northern Studies	Goose Bay, Lab.

III. LeDrew Environmental Management Ltd.

Katrina Hodgson	St. John's, Nfld.
Bevin LeDrew	St. John's, Nfld.
Peggy Lough	Happy Valley-Goose Bay, Lab.
Denise Ann Trainor	Happy Valley-Goose Bay, Lab.

REPORT TO: General Manager & Board of Directors
From : Bill Flowers
Re : Petro Canada Seminar
Date : November 23, 1982

In October,

Torngat Co-Op was issued an invitation to attend a seminar to review the Off-shore Labrador Initial Environmental Assessment prepared by Petro Canada. All communities in coastal Labrador as well as the Lake Melville area were invited and most sent delegates in to the meeting. The meeting took place on November 17, 18 & 19 at the Labrador Institute in Goose Bay.

Although Petro-Can has not yet discovered sufficient quantities of oil and gas to warrant development of the reserves in the Labrador Sea, they have gone through considerable effort to gather information on the physical, biological and the socio-economic environment of Labrador. This initial assessment is merely the groundwork for a more comprehensive Environmental Impact Statement which will be done should it be decided that reserves are there in commercial quantities. Petro-Can has also made a big effort to consult with the communities in Labrador and is continuing an ongoing, developing program in this area.

The first part of the session that I attended was highly technical with a lot of scientific language which I will not even try to interpret here. The 500 page document, of which much was scientific, was sent around to all communities for their review prior to the meeting. Although in a review like this, there has to be a certain amount of technical discussion but concentrating too much on it especially in a public forum, overwhelms delegates and really proves nothing. However, I will touch on a few items that were discussed at the meeting which may be of interest to Torngat.

COMPENSATION - Petro Canada is required to post a \$35 million insurance bond for its operating season to replace, repair or repay any damages to fishermen (ie. gear, boats, time loss, etc.) resulting from a blowout. Where Petro Canada is the operator off Labrador, they are absolutely and totally liable in such an event.

A separate program exists for such things as gear loss due to oil and gas activities other than a blow-out. They have standard forms that have to be filled out

for example if a supply ship tears up a net, the fishermen is required to fill out the form, Petro-Can would want to see the net as evidence and they know the location of their vessel at any given time. They would pay promptly if it is determined that they are negligent.

FISHERIES SECTION OF THEIR REPORT - I was concerned that this section lacked updated information. The most recent information in the report came up to 1979, and I pointed out that the most substantial increase in landings have been since that time. The information to date in the report is outdated and does not give a realistic picture of the value of the Labrador fishery and the result is that the report (through I believe unintentionally tends to play down the value of the fishery). The information is interesting from an historical perspective and Petro-Can explained that this was the main purpose of the fishery section. If further studies are done in terms of the Environmental Impact Statement, much more adequate and detailed information will be sought.

Throughout the discussions Petro-Can personnel continually recognized the importance of the fishery to the coastal Labrador economy making comments like there is presently a revolution going on in the fishery which may mean the whole economic turnaround for Labrador.

One point that was made during the discussions was that the Eastern Petroleum Operators Association (EPOA), a group of oil companies operating off the Canadian East coast including Labrador, has a sub-committee on fisheries, which, although I am not too clear on what it's mandate is, has some kind of budget mainly I believe for research on fisheries matters. It would be worthwhile to find out more about this committee.

ENVIRONMENTAL IMPACT - I expressed concern that this type of impact could occur in a number of ways first in the physical environment. If an oil blow-out occurred off Hopedale or Saglek, it would probably drift southward through the Hamilton Banks where the cod population is centered. The consultants said that this was true but would likely cover only the edges of the Banks. If the oil was blown inshore, toward a sensitive area for fishing for example, Hebron Bay, they would have booms that could be put across the Bay to prevent the oil from going in. Apparently they have people around the Province including Labrador trained to handle a situation like that.

The other impact which concerned me was the impact on people. If the oil industry

comes in a big way, than Torngat is faced with living in a very competitive cash environment which could see a lot of skilled persons being drawn toward the oil industry. I think that some thought needs to go into this. No one can tell people what kinds of careers they should choose, but some planning on a large scale needs to take place as to how the two industries are going to live together.

COMMUNITY CONSULTATIVE PROCESS - Petro-Can reserved the last half day of the conference to discuss their community liaison process. Wayne Piercy is their local representative in St. John's, who has travelled to all communities in the past year and a half. Community consultation is an extremely complicated issue in Labrador as it relates to the complexities of oil and gas exploration and development. To have a meeting in Goose Bay with one or two representatives from each community is not sufficient in that the burden to carry the messages back to the people in the communities is left to these delegates and often this is overwhelming. Petro-Can realizes this and are looking for ways that they can be more effective at the community level. My suggestion was that meetings should be held, certainly in places where Petro-Can is working like Hopedale and Cartwright, but any other communities that show interest and make requests for meetings to Petro-Can. Maybe there should be more people who can devote their full time to community awareness, employed either by Petro-Can or the Federal and Provincial Governments, whose responsibility it is to liaise with communities because the oil companies are here and they seem to be going to stay for a while.

Selected information should also be provided to community leaders, brief and to the point information, not 500 page technical documents. This way the leaders will have a better idea as to what is going on and be able to more adequately place it on a priority list so that they can decide whether they want more information, meetings, etc.

All in all, the conference, though I was critical of the process, was probably worthwhile. I would think that just the opportunity for local people to mingle with Petro-Can and Government personnel on both a formal and an informal basis was worthwhile. However, there has to be more meetings in the communities both North and South along the Labrador Coast.

OFFSHORE LABRADOR
INITIAL ENVIRONMENTAL
ASSESSMENT BY PETRO CANADA
JANUARY, 1982

Comments by Bruce K. Boles, Labrador Institute of Northern Studies, Memorial University of Newfoundland. Nov. 1982.

This report, submitted to Petro-Canada, is reproduced in its original form.

GENERAL

Petro Canada has taken a partial (and brave) step forward in providing a general overview of the Labrador Sea and some of the implications of exploratory drilling and related activities. The IEA and subsequent scientific review provides additional useful data and opinions on exploratory drilling procedures and associated impacts, and the Labrador environment that were previously not available in one document. However, the presentation of one aspect (slick trajectory) in the IEA is flawed and as a result puts a major part of the work in question. Thusly the previous reference to only a partial step.

The ideal is that any reviewer read and understand the entire document. I do not profess to fully understand all aspects of the IEA because of some of the complexities involved in some specialist topics e.g. microbiota. My comments therefore will be limited to what I consider to be a potentially misleading statement or tact of the document and some erroneous factual items in various parts of the text.

A. Slick Trajectories

In the executive summary of the IEA the statement is made that:

"Slick trajectory modelling of hypothetical blowouts off Labrador indicates that, under normal conditions, oil would be more likely to remain at sea than to go ashore. However, strong easterly winds could drive slicks from some wellsites ashore in less than a day" (p.1-14, para.4).

In the "Offshore Labrador Initial Environmental Assessment Summary" the comment is that:

"Slick trajectories have been developed using computer models. These can indicate the travel route of oil on the water surface under a variety of conditions. Under prevailing wind conditions, oil slicks would probably remain offshore and drift south east with the Labrador Current". (p.46, para.1).

The executive summary of the IEA is more complete and covers the potential for coastal pollution more fully and forthrightly than the document prepared specially for the community review.

If the text of the IEA is consulted in several different places statements reducing the level of confidence in the "offshore trajectory" concept become noticeable.

1. a) "Figure 6.2c shows that under normal wind conditions [in November], the slick might either come ashore between Cape Harrison and Battle Harbour, or alternatively, might drift out to sea over Balle Isle Bank." (p.6-31, para.1).

1. b) "September would be the most probable month for oil to go ashore under normal conditions. However, under normal wind conditions in any month, a slick would probably not go ashore". (p.6-33).

Statement 1a (November) implies a more or less equal chance for onshore drift whereas 1 (b) says September is the most probable month for oil to go to shore but even then it probably would not.

Which statement is the more likely case?

2. "Salient features of the [slick trajectory] model are as follows:

- 1) wind and currents are the only factors that affect slick trajectories.
- 2) the model uses actual wind records derived from OSV Bravo data.....
- 6) the model does not account for the presence of pack ice or shore fast ice". (p.6-31).

One wonders about the usefulness and reliability of the model in enabling Petro Canada to make their "offshore trajectory" statement when their comments about the models raw materials, wind and current data, are assessed.

The text notes that for wind, "There are no long term continuous weather records from any point on the Labrador Shelf" p.5-89

As well "the duration of the observation program from the individual drilling site is too short to provide meaningful climatological statistics" (p.5-89)

Ocean weather station vessel BRAVO was located at 56.5 N 51 W, some 300 miles off the Labrador coast. The hypothetical spills and trajectories described are from sources some 60-100 miles off the coast. Are the weather patterns the same? Wave data (p.5-128) are apparently calculated using BRAVO data but the text warns that "the location....is distant from the Labrador Shelf".

With regards to currents "observations undeniably show a mean current flowing from the northwest to the southeast along the shelf...However, direct measurements of the currents have shown occassional periods of northward flow and often have shown rather vague directional tendencies. Very few direct data have been collected. The bulk of these data also come from the summer months". p.5-107.

This is followed by "there are too few data to draw any conclusions about the seasonal variations of the measured currents, and none to make any suggestions about year to year variations". p.5-128.

The model does not take into consideration the presence of pack ice or shorefast ice. Ice is a phenomena that covers the Labrador Shelf for up to 50% of the time in many years. Will its presence on the surface of the water affect the trajectory of oil? Will wind remain the dominant force or will water currents assume dominance? Will oil entrained in the ice travel, and if so how far? Will oil fill and follow leads? The results from a model which does not include the influence of a phenomena so encompassing and blanketing as ice is in the Labrador Sea can only be suspect. There may be some logic in talking about the ice free periods developed through the model but can this really be applied in ice seasons, yet exclude ice as a factor?

Petro Canada does allude at one point to the unknown influence of the ice in the Labrador Sea on oil from a blowout.

"Although the oil-under-ice work in the Beaufort Sea is instructive, more information is needed to predict the behaviour of oil following a blowout in the Labrador Sea. The Labrador Current might cause much broader dispersal of oil under ice, and slicks under ice might be thinner and discontinuous. Oil trapped in floe ice could be advected many hundreds of kilometers from a blowout site. Melting of contaminated ice floes could release oil, in a virtually contaminated unweathered state as far south as the Grand Banks". (p.6-27, para.3).

The points made lead me to conclude that any predictions about the probability of oil spilled at a well site not coming ashore, are in this document based on extremely limited weather and current data and worse than being conjecture, the statements about probable offshore drift of a slick could be extremely misleading to anyone not being aware of the quality of the data base upon which the prediction rests.

B. Type of Oil Potential on the Labrador Shelf

Petro Canada notes that "to develop a blowout scenario for the Labrador Sea, both the quality and quantity of escaping hydrocarbons must be established". (p.6-21, para. 5).

"Crude oil from Labrador is likely to be a light, low gravity crude oil....(p.6-21, para. 5).

"Characteristics of the crude from North Bjarni have not been published and are confidential". (p.6-21, para.5).

The composition of natural gas from Bjarni 0-82..is representative of the gas produced from the Labrador Shelf". (p.6-22, para.5).

Bjarni 0-82 is next door to North Bjarni. Was the gas (if any) at North Bjarni representative of the Labrador Shelf? Was the crude found at North Bjarni a light, low gravity crude oil? Information I have leads me to believe it was not a light, low gravity crude oil. If it was a heavy oil then how would this affect the slick trajectory and the blowout scenarios?

C. The following section deals with some errors of fact or opinions in the text. While I have read the entire text I feel only technicaly competent to critically review the marine mammals section (5-16).

<u>Page</u>	<u>Section</u>	<u>Remark</u>
1-2	1.2	para.2 "Assessment attempts...impact...on...the people of Labrador" - The data base presented in this document is to scanty to enable fulfilling such a lofty and complex objective.
1-11	1.5.14	para.3 "abundant salmon and cod first brought Europeans" - it was probably timber and whales which brought the first Europeans (Viking and Basques) to the Labrador coast. Coincidentally, like Petro Canada it was, also oil that the Basques were after.

- 1-11 1.5.14 para.4
 Add shrimp as an important species.
- 1-17 1.7 para.5
 Add shrimp fishery and relation to developing social conditions.
- 2-8 2.4.2 para.3
 re: South et al 1979-What about LeDrew and Gustajtis (1978) and Northlands (1977)?
- 2-11 2.4.2 Various places
 This document will be a good source only after critical review and the addressing of criticisms made of it and subsequent republishing.
- 3-16 3.4.3 Relief wells - response to an uncontrolled blowout is possible only in relation to seasonal factors. A blowout has a higher probability to occur late in the season because then the drilling would be more likely to be at a deeper depth (=greater pressure). Experience around the world has been that blowouts tend to occur late in a holes drilling history, rather than early.

It takes longer to drill a relief well than an ordinary well - how long is long? If a blowout occurs late in the season then how can it be dealt with or will it run until the following summer? If so - what effects and what trajectory?
- 5-11 5.2 para.2
 Blake (1953) should be 1956. Fitzhugh (1972) says uplift is 1 ft./century. Fitzhugh (1972) says Blake (1953) says 3 meters/1000 yrs. uplift. This report say 0.4m./1000 yrs. This should be checked on.
- 5-24 5.2.2 para.4
 If Blake (1953) is indeed 1953 then the literature cited should reflect his M.Sc. thesis of (1953) or if (1956) then it should reflect his publication in 1956.

- 5-25 5.2.2 para.2
Coastal relief is not particularly high and in fact for the most part is less than 150 m. from the Straits to Makkovik and 150 to 300 m. from Makkovik to Nain. Coastal elevations of >300 m. do not generally occur until north of Nain.
- 5-37 5.2.4.1 (m) "Coastal relief is high, >250 m." is not consistent with page 5-25 which is wrong anyway-both are wrong.
- 5-63 5.3.4 para.3
Last sentence should read "deposits then conducting slope studies".
- 5-67 5.4.1 para.2
The sequence of decay of landfast ice is not reversed. First melt out occurs in the backs of bays due to an influx of fresh meltwater, followed by a breakup from seaward to the headlands and then finally a melt out of the bays or fjords.
- 5-80 5.4.9 para.2
"where isolines of equal numbers of iceberg flux are superimposed".
WRONG. They are not all equal (25-50-75-100-125-140).

In fact using the figure of "25" between isolines shows that there is a much reduced flux in the months between March and July. Possibly a smaller unit between isolines would be more useful.
- 5-25 5.16.2 para.3
Ringed seals are economically important to small settlements as far south as Rigolet.
- 5-256 5.16.2 para.4
"gestation period of 270 days" - where did Boles et al (1980) say that?
- 5-259 5.16.2 para.3
Boles et al (1980) did not conclude that the grey seal is relatively rare on the Labrador Coast.

para.4

Narwhales. See literature analysis by Brice-Bennet ("An overview of the Occurrence of Cetaceans Along the Northern Labrador Coast. 1980".) where she gives and indication of the rarity of the narwhal in the last several decades on the Labrador coast. This is worth mentioning.

It is unfortunate (and not the fault of Petro Canada) that there is not more information available on some seal species and the various whales since impacts postulated in this document range from slight to severe or unknown. The available data for Labrador or elsewhere on their biology or impacts from hydrocarbons is so deficient that the impacts projected in this report (p.6-78 and 6-79) can only be described as conjecture.

D. The document is described as an Initial Environmental Assessment. One puzzles at the timing of the release and review of this document.

In the "Summary - Offshore Labrador Initial Environmental Assessment" Petro Canada indicates that the IEA was prepared at the request of COGLA. Why did COGLA want such a report at this time? Why was the document prepared when a goodly portion of very pertinent OLABS and other research was not yet available? Surely in this case future biological research needs have to be determined on the basis of all available biological information, most ideally in conjunction with comprehensive oceanographic and climatological data. Now that a rough general baseline of some key environmental features of the Labrador coast and Sea are available it seems more efficient to await more definitive slick trajectory modelling before instituting another scheme of biological research.

Depending on the results from more reliable data being put into the model (than those put forward in this IEA) more detailed biological research can be identified and designed to respond to the more specific needs arising from exploratory drilling or production activities.

Exploratory drilling has been underway for over 10 years in Labrador waters. There is no need now to rush and do a piece meal job on a question of some importance.

There is a need now, however, for good continuous monitoring of the natural fluctuations of some parameters.

OFFSHORE LABRADOR - INITIAL ENVIRONMENTAL ASSESSMENT
COMPREHENSIVE REVIEW OF PETRO-CANADA'S OFFSHORE OPERATIONS

LABRADOR INUIT ASSOCIATION

GOOSE BAY
NOVEMBER 1982

This report, submitted to Petro-Canada by the Labrador Inuit Association, is reproduced in its original form.

TABLE OF CONTENTS

	<u>Page</u>
Letter of Intent	i
1. INTRODUCTION	
1.1 Purpose of the IEA	1
1.2 Process of Review of IEA	2
2. THE MESSAGE	
2.1 Petro-Canada's Message	3
2.2 LIA's Message	5
3. THE CONTEXT FOR LIA's COMMENTS	
3.1 LIA's Role	5
3.2 Need for Planning	6
3.3 Disparity of Environmental Regulation	8
3.4 LIA's Initiative	8
4. LIA's COMMENTS - IEA	
4.1 LIA's Criteria for Evaluation	10
4.1.1 Does IEA fulfill objectives defined by Petro-Canada	11
4.1.2 Does IEA improve our state of knowledge of impact of exploration activities?	18
4.1.3 Does IEA do anything to change regulatory disparity?	18
4.1.4 What does IEA reflect in terms of corporate attitude?	23
5. AS IF PEOPLE MATTERED	
5.1 The Importance of People in the IEA	25

TABLE OF CONTENTS (cont'd)

	<u>Page</u>
5.2 The Importance of Community Consultation and Participants	29
6. RECOMMENDATIONS	
6.1 Consultation/Liaison	36
6.2 Research	37
6.3 Process	39
7. GUIDELINES AND REQUIREMENTS OF A COMMUNITY LIAISON PROGRAM	

LETTER OF INTENT

To: Petro-Canada Offshore Explorations

Attention: Gerry Glazier
Gary Leitch
Wayne Piercy

The Labrador Inuit Association has reviewed Petro-Canada's Offshore Labrador Initial Environmental Assessment (IEA) very carefully. We have been actively involved in offshore issues for some time and our message is consistently the same. LIA opposes any invasive offshore development activity prior to having our outstanding land claims settled. However, we also must live with the realities of ongoing exploration activities and potential offshore production. We have a lot to say about how industry and government proceed with these plans and we are prepared to participate in meaningful opportunities to make our views known.

This Petro-Canada IEA review confuses us. It is not a review "process" for the public. It is a seminar soliciting our comments on a document that will not be revised or updated. The timing of the document raises all kinds of questions for us about motives and objectives. Therefore, we have decided to deal with the IEA as it raises serious questions about offshore exploration; about environmental protection and management of the Labrador offshore; about Petro-Canada's presence, programs, policy and attitude on the Labrador Coast; and about the process of environmental review.

Many of our comments and our recommendations will clearly require changes not at an errata level for an IEA that will not be revised, but at a more fundamental, philosophical level. We want to direct our comments to the areas and agents where we think change can be effected. We hope our comments will require Petro-Canada to assess their corporate policies and priorities as they relate to research priorities and to people.

Some of our comments are also directed at both the federal and provincial levels of government because they too must share in the responsibility of determining orderly and environmentally safe development for our offshore.

Finally, we do want to thank Petro-Canada for opening up the government internal review process to allow us a chance to comment. It is an initiative that we appreciate and one that we hope we can keep open. While our comments are critical, they are intended to be constructive with the

hope that we can work in a mutually cooperative atmosphere to ensure that the interests of the Labrador Inuit are not threatened by offshore development activities.

1. INTRODUCTION

1.1 Purpose of the IEA

Petro-Canada Explorations has produced a document called Offshore Labrador - Initial Environmental Assessment (IEA) and arranged for a two-part review seminar. Because we were not in a position to respond in detail to the document within six weeks of receiving it, The Labrador Inuit Association participated in the scientific review in May with the qualification that our major efforts would be reserved for the public review in Goose Bay in November. We have had time to review the document, to read Petro-Canada's responses to all the comments and to consider the whole effort in the context of protecting the marine environment as it supports a coastal economy and lifestyle for the Inuit of the Labrador coast.

1.1.1 As we understand it, the IEA was prepared for three major reasons:

- to provide a document that can support industry's oil spill contingency plan for the waters off the Labrador coast;
- to pull together relevant research information relating to offshore Labrador; and
- to make environmental assessment and review information for this area more consistent with current regulatory requirements of government.

Accordingly, among other things, the two review seminars are intended to allow for comment on the adequacy of the IEA as a supporting document for an oil spill contingency plan. LIA intends to comment on both content of the IEA and on the "process".

1.2 Process of Review of IEA

Before continuing, however, it is important to deal with the term "process" as it is used here and as it affects LIA's understanding of this review and our subsequent participation. By definition, the term "process" means...the action of moving forward progressively from one point to another on the way to completion. That is the case between industry and government. Relevant research is ongoing and anticipated for the future. Technology and understanding of the marine environment continually improve. Industry is aggressive in their efforts to push back these frontiers and government, as a regulatory and monitoring agency, has the mandate to review and assess a large part of the direction

that all of this takes. This IEA, the two review seminars and the reports produced from them, represent part of the ongoing process of review.

1.2.1 For the public, that is not true. What we have here is not a process. We have a one-shot-deal. As an interest group, LIA can make comments at the seminar and then go home. There will be no second, revised IEA. There are no regulatory requirements that force Petro-Canada to respond to and accommodate what might be considered by the public as very legitimate concerns. There is no guarantee of another forum like this to review and assess Petro-Canada's activities. In short, there is no continuum for the public. This review of the IEA is a one-time opening to allow the public a chance to comment on a document. The opening closes after three days and the public is dropped from the "process".

1.2.3 We are pleased that Petro-Canada has taken the initiative to circulate the IEA to the public and to arrange for a public review. We also appreciate Petro-Canada's willingness to accommodate Labrador concerns by holding a second review in Goose Bay. However, from LIA's perspective, this review seminar does not constitute a "process". Rather, because there is no guarantee of another chance with such an audience, we intend to use it as an opportunity not only to comment on the IEA but to comment on the offshore situation in general. We can only hope that sometime, somewhere, somebody will listen.

2. THE MESSAGE

2.1 Petro-Canada's Message

The scientific review in May, and Petro-Canada's response to the comments, clearly suggest that there is a message behind their efforts. That message appears to be a result of frustration with misguided perceptions (public and government) about the role of industry in environmental assessment, and the degree to which industry should be responsible for initiating and funding certain types of environmental research. It also comes with the frustration of unclear or non-existent government policies which do not provide sufficient lead time and guidance for industry to meet the case, or more important, to know what case industry must meet. At every opportunity, Petro-Canada has tried to show the need for delineation of industry and government responsibilities in determining and managing orderly development of the offshore. The frustration that Petro-Canada has as a victim or a "bogeyman" of environmental management is apparent by reading their comments and reactions. We believe that part of the motivation behind the IEA review is to generate an appropriate audience and platform to make this case with the hope that some of the deficiencies in the system and the process may be changed.

2.1.1 To a degree, LIA understands this frustration and certainly we believe that Petro-Canada is justified in their concern about the confusion of and lack of direction from regulators. It all has a direct bearing on how the offshore is developed and managed and, ultimately, on LIA's efforts to protect the interests of the Labrador Inuit.

2.2 LIA's Message

LIA has a message, too. LIA intends to use this opportunity to establish a larger context for this IEA. We intend to make two points here:-

- (1) Despite all of the actors involved, there is no single advocate other than LIA for the protection of the marine ecosystem from phytoplankton to hunter; and
- (2) This IEA represents the state and direction of corporate thinking which, under present circumstances, could be the strongest single influence determining the future direction and nature of offshore operations in the Labrador Sea.

We believe that appreciating this context is a precondition to understanding our comments on the IEA. We do not want this review reduced to a book review exercise only.

3. THE CONTEXT FOR LIA'S COMMENTS

3.1 LIA's Role

Consistent with our mandate to protect the interests of the Labrador Inuit, LIA, out of necessity, has become the only advocate for the protection of the marine ecosystem. There are many government departments and agencies with mandates to protect parts of the system, but always mandates and jurisdiction stop short of the integrated system. Everyone is familiar with these departments and their responsibilities. There are departments to protect the fish and mammals; to protect the water quality; to ensure ship safety, etc. Unfortunately, when all the parts are pieced together, we do not get a system of protection that is comprehensive. Two major factors work in concert to severely undermine the ability of government to protect the environment. They are: (i) the absence of a centralized offshore planning agency, and (ii) disparity in the environmental regulatory system for waters south of 60°N.

3.2 Need for Planning

LIA is on the record consistently maintaining that there must be an agency with the authority to plan and regulate offshore development activities that are currently

proposed and that could affect the Labrador Sea. Right now, in addition to Petro-Canada's offshore exploration activities, there is the proposed Arctic Pilot Project (APP) and Dome's proposal to tank oil in Class 10 icebreakers from the Beaufort Sea to southern markets - proposals which have implications for the Labrador Sea.

There is a very real possibility that the Labrador Sea could become an inseparable link in a marine transportation corridor which provides access to southern markets for arctic resources. If this is the case then it will happen without any real sense of the implications, impacts or synergistic effects of projects.

3.2.1 A central offshore planning agency could look at the overview of the situation and determine critical parameters like rate of development, timing, sensitive areas, priority data gaps, assessment guidelines, etc. However, the reality is that we are forced to react to projects and proposals in isolation, as if they were or will be the only operating activity in the waters. We are confined to assessing the Petro-Canada IEA as it supports a specific contingency plan for oil spill clean up, not as it represents an invasive activity with potential short- and long term impacts. Considered alone, Petro-Canada's activities may not be awesome, but considered in the context of other proposed activities it could require a different set of assessment criteria.

3.2.2.1 For example, data gaps, particularly those that are related to biological processes - that Petro-Canada refers to as "nice to know" but not important for their contingency plan - may become essential parameters for all marine related development activities. It is also possible that, in such a context, Petro-Canada would not be able to isolate themselves so much from any responsibilities relating to assessment of possible production.

3.3 Disparity of Environmental Regulation

Arctic waters north of 60°N are protected by the Arctic Waters Pollution Prevention Act which does not cover waters south of the 60th parallel. Exploratory drilling in Lancaster Sound and in Davis Strait had to go through an EARP hearing. Drilling on the west coast may also undergo an EARP review. Drilling in the Labrador Sea has been going on since 1971 and has never been subjected to any formal or informal environmental review - federal or provincial. Terms of reference for an EARP review of Dome's plans to tank oil terminate at the 60th parallel.

3.3.1 With the current timetable of proposed marine development activities, this situation raises a number of questions:- How will the effects of a potential year-round marine transportation corridor be determined? Who will do it? What about synergistic effects of different marine-related projects and activities? Who will protect the right of harvest and access to the marine resources of the people who depend upon them for their livelihood?

3.4 LIA's Initiative

These questions appear to be outside the scope of our environmental review system and government regulatory agencies. We see no sign that the federal government or the Petroleum Directorate is prepared to take the initiative. By default, LIA has become the advocate for comprehensive marine protection and management and has been the one to ask these questions. LIA has spent a lot of money and manpower arguing this case before the National Energy Board hearings on the APP; attempting to bring EARP and Dome into northern Labrador re the Beaufort Sea proposal; appearing before the Special Senate Committee on Northern Pipelines; working with the Inuit Circumpolar Conference on marine transportation issues, etc. In all cases, the position taken is the same. We can only hope to achieve this long term objective through responsible and consistent assessment of the issues in question.

3.4.1 One of the real difficulties that we have as a public interest group is that the onus of proof is on us to prove that an impact may occur. It should be enough to raise reasonable doubt or question to have a concern treated as legitimate.

3.4.2 Many of the concerns that LIA will raise about the IEA will be dismissed by Petro-Canada as issues not relating to Petro-Canada's objectives or mandate. While that may be true, it does not necessarily reduce the legitimacy of the concern. What it does do is leave LIA without any due process under existing regulations to try and have the concern addressed.

4. LIA's COMMENTS - IEA

LIA's Criteria for Evaluation

Petro-Canada must be congratulated for their willingness to open up this phase of their work for public review, and they should be congratulated for the amount of time, effort and money they have spent in doing it. LIA has reviewed the document and contributed substantive comments on the science and analysis at the scientific review in May. In terms of the comments made at that time, LIA's concerns were similar to those of the majority of scientific reviewers.

In this paper, we will deal with general comments on the IEA and leave specific comments on the document to the review seminar forum. We see little value in going through the IEA point-by-point because it will not be revised. LIA's concerns go beyond that to the realm of questions of a different order. LIA assessed the document according to the following criteria:-

- does the IEA fulfill the objectives defined by Petro-Canada?
- does the IEA do anything to improve our state of knowledge of impact assessment of Petro-Canada's exploration activities?
- does the IEA do anything to change regulatory disparity in the offshore?
- what does the IEA reflect in terms of corporate attitude?

4.1.1 Does the IEA fulfill the objectives defined by Petro-Canada? According to Petro-Canada, there are three explicit objectives of the IEA:-

- 1) To provide a complete description of the content and scope of environmental information within the OLABS Program study region;
- 2) To evaluate information in the context of ongoing exploratory drilling and potential offshore hydro-carbon development; and
- 3) To identify and to assign priorities to additional environmental studies.

However, at the Scientific Review Seminar, we were told by Petro-Canada that "One of the objectives for which we are here today is to determine if this document is suitable to support oil contingency planning on the Labrador Coast" (p.2). Until then, that objective had very low profile in the IEA. After reading the annotated draft version of the scientific review, it becomes readily apparent (from Petro-Canada's responses) that this objective is the overriding concern. It becomes the criteria against which reviewers' comments are given legitimacy and acceptance (see responses:- 39, 53, 77, 82, 89, 109, 121, 244, 251, 253, 272).

4.1.1.1 Given the emphasis that Petro-Canada places on this objective, LIA believes that the contingency plan document should have been included with the IEA. There was divided opinion about this at the seminar and, at that time, LIA expressed a concern that the contingency plan accompany the IEA. Without the contingency plan available it is difficult

to assess the adequacy of the IEA as the supporting document. Therefore, in light of the clear priority expressed in Petro-Canada's responses, LIA considers, as a deficiency, the separation of the contingency plan from the supporting documentation*. In fact, it is the contingency plan that is the operating document, and it is the contingency plan that we should be officially reviewing as well. When the contingency plan was requested at the last seminar, we were told that it wasn't important.

4.1.1.2 As supporting documentation for oil spill contingency planning on the Labrador coast, LIA believes that the IEA is deficient. The major deficiencies relate to:-

- 1) No discussion of the implications of a delay in relief well drilling, especially late season drilling (3.3.3.1).
- 2) Little predictive ability to determine behavior of oil under sea ice (6.5.5).
- 3) Inadequate understanding of the value in dollars and in the kind of marine fish and mammal harvest that support the Labrador Inuit (no basis for compensation). Such a discussion is absent from Section 7.
- 4) Inadequate understanding of biological processes involved in the Labrador Sea. This could influence, to some degree, the techniques/chemical dispersants used or not used.

4.1.1.3 Section 6 in the IEA deals with the fate and effects of an oil spill blowout. In our opinion, this section is so highly speculative and based on interpolation of data and extrapolation of conclusions. We have two major criticisms of this section and they relate to the slick trajectory model and the methodology and approach used in assessing the effects on the biological environment.

4.1.1.4 The slick trajectory model uses wind and currents as the only factors determining slick trajectory (p.6-31). Wind data is taken from OSV Bravo data, despite the limitations of this source. On page 5-98, the IEA states that OSV Bravo winds are stronger and likely over-estimate those on the Labrador shelf. The IEA, on page 5-128 states that "There are too few data to draw any conclusions about the seasonal variations of the measured currents, and none to make any suggestions about year to year variations".

*We realize that it is available to the "interested reader".

4.1.1.5 The model does not account for the presence of pack ice or shore-fast ice. Finally, the IEA makes the statement that the model would have to be replaced by a real time model in the event of a blow out. Given the limitations of the model, and the interpolated and incomplete data base we have difficulty appreciating any significant contribution to contingency planning beyond a purely academic exercise.

4.1.1.6 The major criticism of Section 6.8 relates to the approach used. By considering the impacts on a component basis, the reader does not get a clear picture of the effects on the marine environment from oil spill. There is no indication that one species interacts with another or that biological processes in the food chain can operate to produce additional impacts of varying orders of magnitude, or what the synergistic effects might be. Impacts on components seem to be "quantified" according to direct morbidity and/or mortality on population numbers.

4.1.1.7 The quantification scale of slight, moderate, severe, then becomes misleading. How many "slights" make a "moderate"? How many "slights" x "moderates" make a "severe"?

4.1.1.8 We believe that this section is of little value in attempting to assess the biological effects of an oil spill on the Labrador Sea. We do appreciate that it is an attempt to deal with the problem and that is definitely an exercise that must be included in such a document. However, it would have been infinitely more useful to trace the path of the oil through the food chain, identifying the vulnerable pathways and sensitive links. History has shown us that the real impact of an oil spill is no so much the direct kill but the problems that begin to appear after "clean-up".

4.1.1.9 LIA urges Petro-Canada to consider a pre-impact analysis approach similar to that used for the Barrier Island Lagoon in Alaska. It is the approach that LIA is advocating, not an indepth EIS at this stage (see recommendations).

4.1.1.10 The fundamental problem with Petro-Canada's objective of providing a complete description of the content and scope of environmental information within the OLABS Program study region was timely. While the OLABS program terminated in 1981, the results of a number of studies are still pending. The IEA was released in the middle of this and it has led to a number of difficulties, all of which are noted in the review book. The major difficulty for LIA is that we do not know how, or if, this (as yet unpublished) material will be used to reflect responsive actions. We understand that research is an ongoing and ever-changing process and we encourage Petro-Canada's aggressive efforts in this field. However, LIA has no opportunity to become involved even at an advisory stage in the evolution of Petro-

Canada's activities and contingency planning, and we are not content to accept industry or government assurances that all will be looked after.

4.1.1.11 In our opinion, Petro-Canada has done a credible job on synthesizing the research material and putting it together as a "state of the art" document. We do not have problems with the fact that it has been criticized as dated. That cannot be helped. However, we do feel that it is possible for Petro-Canada, government, and LIA to design a dynamic approach which would allow for ongoing impact and review that would accommodate outside comment (see recommendations).

4.1.1.12 Petro-Canada's next objective is to evaluate information in the context of ongoing exploratory drilling and potential offshore hydrocarbon development. LIA does not believe that the IEA has fulfilled this objective. Other than vague references to the link between exploratory drilling and potential production, there is no attempt to deal with assessment of production scenarios in the IEA (Section 6.2). Petro-Canada has devoted some pages to a brief discussion of proposed production systems, but has not extended the discussion to impact related studies or commitments.

4.1.1.13 If the IEA was to consider seriously potential production, then there would have to be considerably more information and effort directed at potential impact assessment. Instead, the IEA and Petro-Canada in their responses all stop at making the link to production. We are not saying that as an operator involved in exploration activities Petro-Canada has a responsibility to cover off as early as possible the possibility of production. This could be done by committing money and time to studies that require more than a goal-oriented approach. It would include studies that would focus on the ability to detect change and separate natural from man-induced variation, on biological processes as they determine the trophic interactions, and on the human environment, and a monitoring program that would have longer term objectives in anticipation of production possibilities. Petro-Canada has confined its comments and research to the exploration phase and by doing so attempts to infer that exploration activities can be easily encapsulated in time and space with no overlapping effects or responsibilities (see responses 197, 109, 115).

4.1.1.14 Petro-Canada identified a number of research items that have high priority for future operations. LIA does not agree with the priority scale. The research is clearly engineering-oriented and related to the contingency planning criteria. People do not fit into the equation at all even though, should there be adverse effects from a disaster scenario or just chronic activities, they are the ones who

stand to lose. Petro-Canada places low priority on chronic effects even though, statistically, those are the more likely to occur. Even though exploratory drilling has been continuing for 10 years, there is still no attempt to establish a monitoring program to consider the effects on people (see 7.2.5, IEA).

4.1.2 Does the IEA do anything to improve our state of knowledge about the effects, in the study area, of offshore exploration activities?

4.1.2.1 The simple answer to this question is NO. Petro-Canada describes the nature of offshore exploration activities but provides little opportunity to access the impacts beyond a very superficial level.

4.1.2.2 In Section 6.2, p. 6-3 to 6-12, there is a discussion of the effect of routine drilling operations. The effects from drilling fluids have been extrapolated from tests done 161 km offshore from Los Angeles. We do not know heavy metal concentrations in the Labrador Sea and there has been no study done to determine effects through the food chain. A conclusion that no significant impacts will occur from drilling fluids is premature.

4.1.2.3 The IEA makes the following statements:

The impact of supply vessel traffic on the migration patterns of whales off Labrador has not been assessed (p.6-11).

There has been no assessment of the impact that accidental spills have had during past Petro-Canada and Total Eastcan programs (p.6-12).

There has been no environmental assessment of the impact of Petro-Canada and Total Eastcan's use of shore based facilities (p.6-12).

None of this contributes to our understanding of the impacts of exploration on the marine environment. Petro-Canada apparently concerns themselves only with direct impacts. For example, in response 109, Petro-Canada interprets social impacts to be those related to employment resulting from industrial onshore activity. The frustrations and perceptions of Labradorians are obvious; yet Petro-Canada does not appreciate what is at the root of it all. It is premature for Petro-Canada to assume that they do not and/or have not played a role in this and to assume that they have not ... exacerbated the problem.

4.1.2.4 For example, there are some real complaints about Petro-Canada's hiring policies. We realize employment numbers are low but criticisms range from complaints that

say Petro-Canada raised false hopes, to a failure by Petro-Canada to inform unsuccessful candidates. People who live in Hopedale have also complained that Petro-Canada does not always hire local people for jobs when local people are available (i.e. the cook's position).

4.1.2.5 This past summer a number of fishermen who fish around the Saglek area have complained that due to oil spills they were forced to move their nets and gear. The details of complaints like these are hard to document after the fact and the result is unsubstantiated beliefs that Petro-Canada is fouling the waters and making life tough for the fishermen. Here is a clear case of Petro-Canada, unknowingly, exacerbating the frustrations of the people.

4.1.2.6 The best way to deal with this is through project consultation, liaison and fact. What is needed is a program to deal with these oil spill incidents in a manner that is acceptable to the residents of the Labrador coast and to Petro-Canada and the government (see recommendations).

4.1.2.7 Drilling has been going on for 10 years and in that time we know no more about exploration related social/biological impacts specific to the area than we did then. Little attempt has been made to select indicators to monitor for change. Unfortunately, some of the more serious impacts related to bioaccumulation and biomagnification through the food chain take many years to detect. It is not enough to sit back and wait for evident signs. By then it is too late (see Sections 6.2.5, 6.2.6 - IEA).

4.1.2.8 We believe that it would benefit not only the Labrador Inuit but also Petro-Canada to initiate a baseline study for heavy metal concentrations in the marine ecosystem as well as in the residents (see recommendations). If this study begins now then should Petro-Canada decide to consider production, responsibility for some of the impacts related to their activities could be more easily determined. In this process, it is also easier to detect man-induced changes from those that occur naturally. In the long run, if such studies are carried out with the cooperation of the people, the opportunity for frustrations and misplaced perceptions can be reduced.

4.1.2.9 We do not believe that it is to Petro-Canada's credit to say, after five more years of exploratory drilling, that after 15 years of these activities no impact studies have been done. We believe that the following aspects of Petro-Canada's exploration activities should be monitored with the involvement of LIA:-

- toxic chemical (heavy metals, hydrocarbons, radionuclides, others) concentrations in the human and biophysical environment;
- Petro-Canada's hiring and employment policy;
- Petro-Canada's liaison/consultation program;
- Petro-Canada's research program;
- an assessment of the key stress points in LIA communities; and
- Petro-Canada's contingency plan.

4.1.3 Does the IEA do anything to effect change in the disparity of environmental regulation for the Labrador Sea?

4.1.3.1 We believe, as we have already stated, that there is a serious problem regarding environmental protection of the marine environment resulting from inadequate and non-comprehensive legislation. It is a real disparity, not a perceived one as Petro-Canada refers to it. Clearly, we do not expect the IEA to change this situation on its own merit. The IEA, by itself, cannot and obviously has not.

4.1.3.2 However, we believe that Petro-Canada has shown initiative, which if pursued in the right direction, could conceivably help the problem. The production, circulation and review of the IEA cannot be considered a serious effort to influence the review process unless there is some accommodation built into it for ongoing public involvement.

4.1.4 What does the IEA reflect in terms of corporate priorities and attitudes?

4.1.4.1 The IEA is a statement of Petro-Canada Explorations corporate priorities. LIA has made the following conclusions based on what was and was not included in the IEA. These conclusions act as warning lights to LIA, signalling that Petro-Canada's efforts and attitudes may well threaten the interests of the Labrador Inuit.

4.1.4.2 Only direct and immediate impacts are considered legitimate industry concerns. This statement relates to industry research priorities as well as to the extent of the area of interest covered by the oil spill contingency plan. The IEA is largely a compilation of information on the various biophysical components of the Labrador Sea. There is very little indication in the impact section that any one component interacts with another. For example, impacts are discussed as direct impacts on each species. There is no suggestions that seals not in the direct vicinity of an oil spill could still be at risk by feeding on oil-damaged fish (see response 272).

4.1.4.3 This is an attitude that LIA feels is too restrictive. We believe that with invasive activities like exploratory drilling, the operator must be responsible for the range of possible direct and indirect impacts which it can cause. We believe that these must be articulated as early as possible and appropriate study/monitoring actions be taken. As well, as long as there is reasonable speculation of the possibility the concern should be treated as legitimate.

4.1.4.4 Petro-Canada does not appear to be willing to commit money and time to preparing baseline or process-oriented work in anticipation of production (see, for example, response 244). Petro-Canada's exploration agreement with the federal government will be for five years. During those five years, valuable research can be carried out related to processes. It would be research that could put Petro-Canada much further along the learning curve when, and if, things progressed to the EIS stage. Because of the uncertainty of production capacity, perhaps these studies should be the joint responsibility of government and industry. Presumably, Petro-Canada is exploring in anticipation of developing.

5. AS IF PEOPLE MATTERED

5.1 The Importance of People in the IEA

The next section deals in more detail with the basis for this conclusion. The significance of the conclusion is that Petro-Canada does not see a legitimate link between their exploration activities and potential adverse impacts on people who depend on the sea for their livelihood. LIA strongly disagrees with this and we have made that point throughout this paper.

5.1.1 This is perhaps the single most important factor in the relationship between Petro-Canada and LIA. If this is the perceived attitude of Petro-Canada, then all their attempts to consult and liaise with the Labrador Inuit will be reduced to corporate rhetoric (see recommendations).

5.1.2 Our understanding of the relative costs involved in the compilation of the IEA is that the technical and environmental sections ranged in the multimillion dollar figure, while about \$10,000 was spent on the socio-economic section. The absolute figures are not important; the orders of magnitude separating them are.

5.1.3 The IEA includes only a very small portion of a report which was prepared by the Labrador Institute of Northern Studies. It was prepared on contract for Petro-Canada who requested a preliminary overview of the Labrador coast. For the IEA, Petro-Canada chose to omit for the original report, the following:

- Maps, tables and illustrations
- Size, distribution and seasonal migration of coastal Labrador communities.
- Migration patterns on the Labrador coast.
- Age/sex ratios for Labrador coastal communities.
- Labour-free activity in Labrador coastal communities.
- Average income of Tax Files by Region.
- Community profiles.
- Annotated bibliographies.
- Appendices.
- Report on social realities of coastal Labrador.
- Resource use maps and tables.

5.1.4 There is hard data in the Institute report; there are maps and graphs which provide baseline information. We do not understand the basis for the scarce reproduction in the IEA. LIA believes that the IEA represents a very unfair and unbalanced treatment of the socio-economic sector.

5.1.5 While the IEA describes the Labrador coast in terms of district regions, the reason for this is that social and economic homogeneity on the Labrador coast is not a reality. Petro-Canada must realize and reflect in their programs and attitude that the "Labrador coast" as a single region does not exist. LIA speaks for the north coast region - from Rigolet to Nain. Some of the concerns and priorities of the north coast may well be, and often are, different from those of the Labrador Straits. The IEA does not reflect any assessment of exploration activities on coastal regions.

5.1.6 Nowhere in the IEA is there a discussion of the potential for effects of the blow out scenario on people. Is it because people do not matter?

5.1.7 Although the IEA references Our Footprints are Everywhere, there is very little indication in it of the valuable resource use and harvest information. Clearly, this would be information that would be included in a contingency plan, assuming that there is some accommodation for compensation.

5.1.8 LIA has now made public a report prepared by Peter Usher under contract to LIA. The report is called Renewable

Resources in the Future of Northern Labrador. This report was not available to Petro-Canada prior to the release of the IEA, but we mention it here because, in part, it supplies quantification to much of the information provided in the land use and occupancy document, Our Footprints are Everywhere.

5.1.9 Petro-Canada fails to stress the direct economic links that tie the north coast communities with Goose Bay. Goose Bay/Happy Valley is the major service and supply centre for these communities. It is misleading to assume that economic impacts of the exploration activities would be concentrated in Goose Bay only. Goose Bay is the major supply and service centre for the north coast, in particular, so that social and economic impacts on this area could well ripple out to the coast.

One need only consider the far-reaching effects of the construction of Goose Bay itself. This event was a turning point in the social and economic history of the entire Labrador area.

5.1.10 One of the dilemmas that Petro-Canada appears to have is the degree to which they should be aggressively recruiting Labradorians for work in their programs. This dilemma has caused some bad feelings among some people living in north coast communities. There is a feeling that Petro-Canada means jobs for everybody; but then not many people can get work from Petro-Canada. The reasons for this are not understood.

5.2 The Importance of Community Consultation and Participation

The problem can be reduced largely to one of information and liaison - aggressive attempts. The only way that people's perceptions will be justified is if they understand what the oil and gas industry is like and how Petro-Canada can fulfill certain expectations only. This cannot happen overnight and it can only happen if there is commitment on the part of industry to make the effort.

5.2.1 We are not in a position to predict how many people would choose to participate in the offshore sector. That will only be apparent if Labradorians are given an objective and realistic picture of this industry. It is hard to know if people making decisions now are doing so based on unrealistic expectations of this industry. LIA recommends that Petro-Canada mount an aggressive liaison program with the north coast communities, with the major focus being explaining the offshore industry - its expectations, benefits and limitations. We also recommend that Petro-Canada, after such groundwork has been mounted, also institute a recruiting program which is consistent with the interests of the people.

5.2.2 Petro-Canada does not appear to have particularly good relationships with the communities and the base camps. In Hopedale, there is frustration expressed by the people over the fact that Petro-Canada does not hire locally to the fullest extent possible. As far as we know, we do not have advance information on staff requirements at the base camps. This information would be useful for local people when considering career training options.

5.2.3 We have had no real explanation of why the local hiring policy provides such a low quota of Labradorians. We understand that out of a total peak staff of 814, local hire policy accounts for only about 3% (or 25 persons at the most). This includes only two Inuit on the drillships. The usual answer to this is that exploration doesn't generate large employment opportunities; it is specialized labour, etc. The difficulty is that we don't have the total picture and we are not prepared to accept that there cannot be more accommodation made.

5.2.4 We are not satisfied with the efforts made towards training. LIA would like to see a broader base approach that would include speaking to special interest groups (see recommendations).

5.2.5 So far we have been forced to take Petro-Canada's presence in the Labrador offshore on a one year at a time basis. We have no sense of what they could be doing compared to what they are doing. We know that Petro-Canada is signing a 5-year agreement with COGLA and we assume that corporate policy includes planning over this term. We want, from Petro-Canada, projections of employment, training and business opportunities in the exploration as well as the contingency phase for the length of the agreement.

5.2.6 LIA also believes that there must be a meaningful opportunity to monitor Petro-Canada's attitude and progress of their planning exercises. In the IEA, Petro-Canada states that:

A complete analysis of the economic impact of exploratory drilling upon local residents is not yet possible, because many factors have not been assessed. For example, the costs of foregoing the harvest of local resources, either for domestic use or for sale, have not been compared to the potential benefits of seasonal employment at relatively high wages. The off-season resource harvesting and employment patterns of oil workers have not been assessed. Economic multiplier effects arising from the injection of additional cash into the Labrador economy have not been calculated. Thus, although offshore oil and gas exploration has probably aided the Labrador economy, the exact magnitude of the benefits is unknown. (Section 7.2.5).

This statement is typical of the approach and it applies to offshore oil and gas exploration activities over the past 10 years. There is no reason why this situation should continue. We feel that Petro-Canada has a responsibility to establish a socio-economic baseline and a concomitant monitoring program. We also believe that Petro-Canada is unable to do an optimal job on this unless the federal government and the Petroleum Directorate establish some ground rules. LIA already has a significant amount of valuable and relevant information which, when added to the Labor Availability Study and the resource mapping Petro-Canada is doing goes a long way to accomplishing this. We realize that COGLA is having a set of draft guidelines for monitoring prepared. We would appreciate having access to the guidelines.

5.2.7 Petro-Canada has made some good efforts at community relations on the north Labrador coast and they have also made some financial contributions to LIA activities. Petro-Canada has also been negotiating with the Labrador Inuit Development Corporation its involvement in the supply aspect of offshore drilling. We encourage Petro-Canada to maintain active links with LIDC and to consider financial assistance to LIDC initiated proposals.

5.2.8 It will take time for the people of the north Labrador coast to learn about the offshore industry and the role that they could play. Entrepreneurial skills are there. If they were not, people could not have survived as long and as well as they have. But, these skills have been applied to a different set of operating circumstances. Until they become familiar with the high-powered world of the oil and gas industry in a way that allows them the chance to relate to it on an individual scale then they will be denied the opportunity to participate. To assume that because no business initiatives have deluged Petro-Canada, that there is a lack of entrepreneurial skill and interest on the coast, is a wrong judgment and it is one that does a serious injustice to the people.

5.2.9 As Petro-Canada knows, the Labrador coastal communities are not easy to get to know. There are problems getting people to turn out for meetings, to get feedback from residents. Once again, just because there is poor attendance at a public meeting does not indicate lack of interest. Anyone who reads the transcript of the Brinex Uranium Mine Proposal will get a good sense of how cohesive, powerful and insightful these communities can be. The single message coming through to Petro-Canada is that periodic public meetings are not the most effective way to reach the people. LIA has included a proposed community liaison program which is intended to provide Petro-Canada with more constructive comments on how to deal with this problem.

5.2.10 LIA sees Petro-Canada as a presence that will be here for a while. Relations to date between LIA and Petro-Canada have been rocky and somewhat adversarial. Much of it boils down to a communications and an attitude problem. LIA would like to reduce as much as possible the adversarial nature by working more closely with Petro-Canada. We believe that we also have a responsibility to the Labrador Inuit to see that they get the access to the information and the opportunities that they might consider appropriate. We also must act as advocate for the interests of the Labrador Inuit that lie in protection of the marine resources. This represents a fine line and we can only keep straight if we work with Petro-Canada instead of against them.

5.2.11 We do have a final comment to make on Petro-Canada's comments to the review seminar. In section 5.2 of their formal response, Petro-Canada said:-

A disappointing element of the review seminar was that the participants representing Labrador public interest groups (LRAC, LIA) withheld comment on section 7, pending a workshop to be held in November 1982. Thus, the very people who were best able to comment on this section said little.

That statement is inaccurate and does not reflect specific comments in the draft report (see comments/response 90, 91, 109, 110). The representative there for LIA spoke at length about the social conditions. He was familiar with the report done by Mr. Williamson and the abridged version in the IEA. He spoke about need to include a combination of statistical and qualitative information and he commented on the appropriateness of the section as it represented an accurate assessment of conditions on the Labrador coast. We are disturbed that none of this has been reflected in the reporting.

5.2.12 Petro-Canada's response is particularly disturbing because LIA made it very clear in a letter that they would be participating largely as observers, but would be prepared to comment on the scientific portions - which we did. We stated clearly that we would reserve detailed comment for the more appropriate forum in Goose Bay. Despite that, we did offer detailed comments on section 7 as well. Comments like Petro-Canada's are gratuitous and serve only to fuel adversarial reaction.

6. RECOMMENDATIONS

6.1 Consultation/Liaison

6.1.1 COGLA, under section 5(6) of Bill C-48, establish an Advisory Committee to allow LIA an opportunity to be involved in the information planning and monitoring of Petro-

Canada's activities. There is no formal consultation mechanism in place and the need for one has been clearly demonstrated.

6.1.2 Petro-Canada, in concert with LIA, establish a community liaison program that would be more effective than past efforts. LIA has provided some proposed guidelines for such a program.

6.1.3 We urge the Petroleum Directorate to respond to the issue of environmental control in the Labrador Sea and establish guidelines for exploratory drilling and for monitoring all aspects of industry's plan.

6.1.4 Petro-Canada as operator for the next five years indicate a responsible attitude for socio-economic concerns by committing appropriate funds and initiative to establishing a baseline study for social indicators of impact, and a monitoring program which would allow LIA and the government to assess Petro-Canada's goals, means and success in achieving them.

6.2 Research

6.2.1 Petro-Canada commit funds to biological process oriented research consistent with the priorities articulated at the review seminar.

6.2.2 Petro-Canada consider modelling of coastal and ocean processes in a manner similar to that done by Applied Associates Inc. LIA recommends that the offshore industry pool their resources to develop a centralized, computerized and accessible data base for the east coast offshore. This should reduce the need to reproduce volumes of background information with an IEE, IEA, EIS. The Atlantic Coastal Information Resource Centre in Amherst, Nova Scotia, intends to provide such a centralized function. Has it extended to Petro-Canada and offshore Labrador yet?

6.2.3 Petro-Canada fund LIA for two research proposals (outlines included) that address the following:

- baseline heavy metal concentrations in the biological and human environments on the north coast of Labrador; and
- key stress indicators in the communities.

6.2.4 Petro-Canada include LIA in the LABORS Committee. Production scenarios, even at the proposal stage, can benefit from our input.

6.2.5 Petro-Canada, in concert with LIA, establish and fund an oil spill reporting program for fishermen and hunters in

the north Labrador coast. This would include a component for collecting and testing any oiled specimen found by the people. This would go a long way to understanding and explaining, to the people, Petro-Canada's liability and responsibility.

6.3 Process

6.3.1 Petro-Canada consider using the technique of scoping for all future work. The IEA does little to provide the reader with a sense of an integrated ecosystem or of the key vulnerable components. Laundry list approaches to impact assessment have long been criticized as inappropriate.

6.3.2 Petro-Canada consider using a pre-impact process analysis for their work in the Labrador Sea. This is an approach like the one used in Alaska to determine the impacts of petroleum development on the Beaufort Sea Barrier Island lagoon ecosystem. In essence, this approach involved:

1) A limited number of system components (species) were identified at the outset as key species or "indicators";

2) Major pathways in the food chain of each key species were documented to the extent possible, beginning with the species itself and proceeding step by step down the chain. A major emphasis of the study was to supplement what was already known about food chain dependencies of important species so that a clear picture, from nutrient and carbon source to key species, emerged.

3) As the key species and their major food chain organisms were identified, research was structured to study the major physical, chemical and biological processes that maintained habitats optimal for each key and food chain species.

Consequently, this strategy of elimination of options for study allowed investigative efforts to concentrate on only those physical or biological processes that were directly or indirectly (through effects on the food chain) important to the support of key species and that were judged to be susceptible to alteration by some of the development options possible.

We realize that Petro-Canada has not committed themselves to development yet, but such an approach to impact assessment can influence future research and is appropriate at this stage.

6.3.3 LIA must be allowed ongoing opportunity to comment on any and all developing contingency plans. LIA has a legiti-

mate interest in the contingency planning phase not only because its effectiveness could influence the livelihood of the Labrador Inuit, but also because there may well be opportunities for employment and training in the contingency planning. These have not been identified. LIA would also like to know the details of any shore-based support functions. We emphasize that LIA should be included in the development of the contingency plan, not after the fact. Until the public is allowed a legitimate role in the process of impact assessment reactions will tend to remain reactive and adversarial.

6.3.4 We recommend that both the federal government and the government of Newfoundland establish impact assessment and monitoring guidelines for the exploration, production and abandonment phases of offshore development. These guidelines should be submitted to public review and comment prior to being finalized the same way EARP guidelines for the Beaufort Sea EIS were circulated for public comment.

6.3.5 We urge the two governments to create a central offshore planning agency that would establish guidelines for an integrated and orderly development of the offshore. Such an agency could go a long way to establishing a context within which various proposals could be analyzed and understood as part of an overall design. The agency could also be the force behind developing a centralized baseline data bank. It could help focus industry research priorities. If given a proper mandate and jurisdiction, the agency could do a lot for integrated environmental protection and management of the offshore waters south of 60° and in this way significantly alleviate the current regulation disparity between the waters north of 60°N and those south of 60°N.

An Analysis of the
Petro Canada
Community Liaison Program

Labrador Inuit Association

by Randy Sweetnam
02:065-5
38:003
November 10, 1982

This report, submitted to Petro-Canada by the Labrador Inuit Association, is reproduced in its original form.

Introduction

This analysis of the Petro Canada Community Liaison Program is limited to the concerns of the five north coast communities of Rigolet, Makkovik, Postville, Hopedale and Nain.

The analysis of the Petro-Canada community liaison program is based on the guidelines and requirements of a community liaison program, developed by the Labrador Inuit Association.

The analysis is intended to be constructive, to identify concerns and roles, and generally improve efficiency in the sense of utilizing resources.

The liaison program to date, has essentially consisted of an information program of a limited nature by the Company and an increasing set of demands by the Company to participate in reviews and answer questions for studies.

The information program has consisted of an audio visual presentation and a fieldtrip by a limited number of community leaders to an off-shore rig. Questions concerning employment opportunities and other concerns have been answered on a limited basis.

It is important to note here that, as in the case of research, when demands are made of people and the results are of use to them, the people will respond positively to the demand, generally speaking.

Problem Areas

- 1) The community leadership has expressed a feeling of being overburdened with demands to respond to Petro Canada's needs, particularly Petro Canada's timetable. There is a heavy burden on time, travel and in particular, an onus to inform the community.
- 2) There is a need to expose large numbers of the population, not just the community leadership. It is evident that Petro Canada has established a profile with organizations. A real profile has not been established with the population. This is evidenced based on questions to the Labrador Inuit Association by its membership.
- 3) Discussions with the community leadership suggests that there is not an understanding of the review process. While we acknowledge there are no clear guidelines from the responsible government agencies. The company has not indicated where we go from here.

Suggested Solutions

- 1) The use of community representatives, especially the leadership, to represent the community can not continue as it has. The liaison has broken down to a great degree already and will only continue. The communities are in the best position to make judgements on how to inform people and how to present data. This last point is critical to the message context and content being understood. Some program must be put in place to replace the community representative approach. This new approach must include such exercises as visits to off-shore rigs and seminars.

Some suggested solutions would include hiring, local fieldworkers with a clear set of objectives and training, or negotiate a fieldwork package with an existing agency.

- 2) In conjunction with point number one, the general population is not sufficiently aware. This is not the responsibility of the community leadership. Local representation may provide a solution.

A further solution may be a clearly outlined community liaison program presented to the community.

- 3) The community will want to access the information they need, and then at their own pace enter into a discussion on the costs and benefits of the Petro Canada activity. In this regard, Petro Canada, in putting together a community liaison program to negotiate with the communities would want to consider including the following components:

- 1) An information delivery system that delivers data people request.
- 2) A timetable of stages of development (to the extent this is known).
- 3) A process leading to peoples concerns being examined.
- 4) A funding package to cover associated costs of this analysis.

Conclusion

Petro Canada, while it has a corporate raison d'etre, has been more approachable than other companies on the question of community liaison. For this reason, the Labrador Inuit Association believes that with Petro Canada, we can develop a working model of community liaison, and therefore, the

Labrador Inuit Association has committed energy and resources to this exercise.

This expectation and trust will prove itself in the results of any negotiations that take place.

Guidelines and Requirements of a
Labrador Off-Shore Oil
Community Liaison Program

Labrador Inuit Association

by Randy Sweetnam
02:065-5
38:002
38:003
38:007
October, 1982

INTRODUCTION

Liaison between resource development companies and communities is an integral component of any resource activity. Local people demand a broad spectrum of information in order to judge the costs and benefits of the activity.

In this regard, the Labrador Inuit Association has developed a set of guidelines and requirements for community liaison programs to be conducted by an operator. The guidelines are intended to be constructive, efficient, and with a clear set of objectives on which to base a program.

The guidelines are divided into four sections:

1. The objectives are designed to identify goals of a community liaison program.
2. The fundamentals are the basic understanding of the relationship.
3. The methods outline some ways of achieving the goals.
4. The conclusions are an attempt to explore some options.

Objectives:

- 1) The first overall objective is to expose people to the exploration program, which includes past and present activity. Further, the objective is to expose people to the continuation into the development phase and the abandonment phase.
- 2) Secondly, the overall objective is to expose people to the process involved in analysing the activity at its different stages, in terms of costs and benefits in relation to the local value structure.
- 3) A specific sub objective includes an identification of the Labrador off-shore oil activity in relation to other off-shore oil activities that effect the Labrador coast, ie) Beaufort Sea, Arctic Pilot Project and Hibernia.
- 4) A specific sub objective includes a separation of the operators in the Labrador off-shore. While Petro Can is the most visable operator at this time, succeeding Total Eastcan, Can Terra is making an appearance as an operator, and leases are held by other groups. Individual companies must be identifiable in the long term.
- 5) A specific sub objective is to identify the locations of significance, particularly existing exploration sites and oil and/or gas producing locations. These are particular things of interest to people here.

- 6) A specific sub objective is to separate off-shore Labrador research from research done for areas other than Labrador.
- 7) A specific sub objective is to identify the Labrador activity in the context of the national activity.

Fundamentals:

- 1) It must be recognized as a basic premise that the operator-leaseholder has the responsibility to explain the basis of their program leading up to an acceptance of their application for a permit. Of course routine explanation at all times is also a requirement.
- 2) It must be recognized that the community representative approach to liaison is not adequate. First of all, a particular onus has been shifted from the company to an individual, who then has a responsibility to the community. There is no compensation to the individual, and there is an ever-increasing number of such burdens. Further, there is a demand, based on customs and values that in matters of community consequence, all people be informed and consulted, unless they identify a preference not be consulted on the issue. This is a demanding approach, but a basic requirement for a program of this type and magnitude.*¹ The timetable and requirements of the operator and the different components of the community are not likely to be the same. When the company requires an examination of an environmental review, for purposes of licence renewal, the community leadership may be hunting to feed their family. The operator wants to recognize that they are the ones that want something from the community and that scheduling a meeting based on the companies requirements is not adequate. A case in point is the rescheduling of the Petro Canada I.E.A. from the spring to the autumn of 1982.

*¹ The mandate of a community council under the municipal affairs legislation does not authorize a council to vote acceptance or rejection of a resource activity on behalf of the citizenry, except in particular matters of community impact. The mandate of the Labrador Inuit Association under the constitution does not authorize the Association to vote acceptance or rejection of a resource activity on behalf of the citizenry.

- 3) Both levels of government have a role to play in preparing the communities for the process of review of the resource activity. Appropriate federal and provincial departments and agencies must submit a plan of community liaison, the proposed terms of reference for the review forum, the timetable and funds available, for community acceptance, modification or rejection.
- 4) The role of the Labrador Inuit Association is to monitor the liaison from industry and government, point out deficiencies, and fulfill its own obligations to the membership, particularly the analysis of benefits and costs.
- 5) In principle, the Labrador Inuit Association is opposed to offshore development until land claims are settled. In view of this principle, it must be recognized that the Labrador Inuit Association is involved in any liaison program without prejudice to its land claim principles and negotiations.

Further, the Labrador Inuit Association is involved in any liaison program without prejudice to its role as spokesman for its membership. In this way, the Labrador Inuit Association, in developing any relationship with an operator, or in noting any deficiency or failing to note any deficiency in a liaison program does not prejudice its ability to make changes in the basic structure of a liaison program.

Methods:

- 1) To accomplish the primary objective, an overview of the activity, as many coastal residents who want to go must be able to travel to an on-shore supply site, travel to a drilling site and view the scope and scale of the activity. The idea of representatives of a community visiting a site is not adequate, and will show up when local residents must make decisions about the project, without first-hand experience.
- 2) The operator/leaseholder must conduct community seminars, with particular interest groups, at the time and convenience of the local group, to explain the process leading to the activity, as well as the process involved in the continuation of the activity. This can be oriented to the specific group, ie) fishermen, community councils, schools, and women's groups as examples.

The operator wants to recognize that public meetings are not an appropriate forum for detailed questioning of a particular orientation that is not of interest to others. Following debate or particular interests, general community meetings are appropriate for community decisions.

- 3) As a matter of courtesy, the operator should extend to the Association, an invitation to participate in all community liaison activities as means of analysing the effect of the liaison, and identifying shortfalls and monitoring progress of the community liaison program. This is of obvious advantage to all concerned. It will not always be utilized, because of the limited resources of the Association. The delicacy of such a relationship must also be recognized.
- 4) The objective of identifying the process of review of the project is best dealt with by the appropriate government agency. However, the company must play a substantial role in pointing out the process of analysis, where and when possible.
- 5) The specific sub objectives can all be addressed at the community seminars. It must be remembered that an explanation of any activity, takes place in the context of other events, and explanation of the relationship of one project to another is useful, for purposes of a company to get its project across, even if the others are not your projects.

Corporate logos are useful to separate one company from another, as people become more familiar with corporate symbols and symbolism.

Conclusions:

- 1) It has always been a premise that community liaison must take place in the community. Given the timing requirements of the community, we believe a resident fieldworker-liaison person is a fundamental requirement.
- 2) It may be to the advantage of the leaseholder-operator to negotiate a community liaison package with the Labrador Inuit Association.
- 3) The Labrador Inuit Association is also in a position to offer a service of organizing community meetings and specific interest meetings. This service might include logistics of travel and accommodation, group contact, meeting place arrangements, translator services etc. The need, costs and usefulness of such a service is negotiable.
- 4) This paper identifies as the primary responsibility of the operator, a one of providing information. A question not addressed in this paper is the role of providing financial assistance to the people in their costs and benefits analysis.

